MEDICAL LIBRARY

MAY 16 1950

BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY APRIL 29 1950

TABLE OF CONTENTS

Carcinoma of the Stomach HAROLD C. EDWARDS, C.B.E., M.S., F.R.C.S. 973

Necropsy Findings in a Case of Q Fever in Britain J. W. WHITTICK, M.B., Ch.B., B.Sc. .. 979

Placental Metastases in Malignant Disease Complicated by Pregnancy
S. BENDER, M.D., F.R.C.S.Ed., M.R.C.O.G. 980

Carcinoma of Islets of Langerhans with Hypoglycaemia
B. F. BREARLEY, M.B., B.Ch., M.R.C.P., and J. W. LAWS, M.B., Ch.B. 982

Aureomycin in Brucellosis E. W. LINDECK, M.R.C.P. 985

Brachial Neuralgia W. M. PHILIP, M.B., M.R.C.P. 986

Complete Excision of the Parotid Gland with Preservation of the Facial Nerve
H. A. KIDD, F.R.C.S.Ed., M.R.C.O.G. 989

Scarlet Fever and Tonsillitis in Relation to Acute Rheumatism
T. C. MACDONALD, A.F.C., M.D., D.P.H. 992

MEDICAL MEMORANDA

Cranial Arteritis Presenting as Meningitis. HARRY KEEN, M.B., B.S. 993
Reduction of Tibial Fractures. AUBREY LEACOCK, M.Chir., F.R.C.S. 994

REFRESHER COURSE

Hypertension—II. ROBERT PLATT, M.D., M.Sc., F.R.C.P. 1001

GENERAL ARTICLES AND NEWS

CIVIL DEFENCE SERVICES 1003
A Cervical Knife Handle. TERENCE G. ROBINSON, M.R.C.O.G. 1005
MEDICAL NOTES IN PARLIAMENT 1011
THE SERVICES 1015
UNIVERSITIES AND COLLEGES 1015
MEDICAL NEWS 1017
BIRTHS, MARRIAGES, AND DEATHS 1018

OBITUARY

W. H. Butter Stoddart, M.D., F.R.C.P. .. 1010
Howard Stevenson, F.R.C.S.I. 1010

QUESTIONS AND COMMENTS

Treatment of Bronchiectasis—Artificial Ear Drum—Recurrent Dislocation of the Lower Ribs—Loss of Libido after Oophorectomy—Local Effects of Potassium Cyanide—D.O.C.A. and Ascorbic Acid in Rheumatoid Arthritis—Promoting Lactation—Anal Fissure—Correction 1019–20

LEADING ARTICLES

Carcinoma of the Stomach 996
A New Inquiry 997
Adrenal Cortex and Rheumatic Disease 998

ANNOTATIONS

Student Health and Welfare 999
Microwave Diathermy 1000
Experimental Q Fever in Man 1000

REVIEWS

Alfred Cox 995
Modern Surgery 995
Books Received 995

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE: Poliomyelitis following Inoculations 1004

SUPPLEMENT

Remuneration of General Practitioners .. *179*
Reliance on Specialist Opinion — REGIONAL HOSPITAL BOARDS IN SCOTLAND — SCOTTISH DISPENSING DOCTORS—NEW PETROL TAX *181*
QUESTIONS ANSWERED *182*
HEARD AT HEADQUARTERS *182*
B.M.A. FILM LIBRARY *182*
Annual Report of Council: Appendix III *183*
CORRESPONDENCE *200*
ASSOCIATION NOTICES *202*

CORRESPONDENCE

The Granny Racket. HAROLD E. STASSEN 1006
Treatment of Rheumatoid Arthritis with Deoxycortone and Ascorbic Acid. W. S. C. COPEMAN, M.D., and others 1006
Dental Caries in the Golden Hamster. Sir LEONARD HILL, M.B., F.R.S. 1007
Development and Behaviour of Children. FR. ROBERTS, M.D. 1007
Parotid Cysts. REGINALD T. PAYNE, F.R.C.S. 1007
Treatment of Menstrual Disorders. G. I. M. SWYER, D.M. 1007
Deficiency Patterns in Metallic Poisoning. WILLIAM HUGHES, M.D. 1008
Acute Inversion of the Uterus. T. DAVID LAMBERT, M.B. 1008
Discovery of the Electrocardiogram. MARY D. WALLER, Ph.D. 1008
Contraception and the Catholic. M. C. WILKINSON, M.B. 1009
Ergonomics Research Society. R. C. BROWNE, D.M., C. G. ROBERTS, M.D., H. D. DARCUS, B.M., and others 1009
With Whales and Seals. H. R. LILLIE, M.B. 1009
Points from Letters 1009

Epidemiology Section 1015

BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.1

No. 4660, WEEKLY, PRICE 2/-

Copyright
REGISTERED AS A NEWSPAPER

Against exhaustion

The energising and therapeutic effect of glucose is available in a most acceptable form in LUCOZADE.

Whereas ordinary glucose preparations may have a sickly and even nauseating effect on the palate, LUCOZADE is remarkably refreshing. Once tasted—it is never refused.

An improved form of glucose therapy

This pleasing characteristic is of the greatest value in treating cases of shock, physical exhaustion and other conditions requiring glucose ingestion.

(Containing Dextrose, Maltose, and Dextrin in solution equivalent to 23% w/v Liquid Glucose B.P.)

LUCOZADE

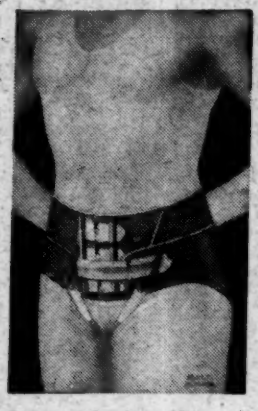
LUCOZADE LTD., GT. WEST RD., BRENTFORD, MIDDX.

M.17

A PERFECT APPLIANCE FOR ITS PURPOSE:

SALT'S *Sacro-iliac* Belt

Designed by an eminent orthopaedic specialist, this Belt is available in styles for men and women. Its perfect efficiency is accompanied with complete comfort. Rapidly restoring the normal relationship of the sacral and iliac bones, it also exerts a beneficial effect on the tone of the abdominal viscera. Not the least commendable thing about this Belt is the fact that it enables the patient to make early resumption of normal activities. Further details and Measure/Order forms available to medical people on request.



Appointments at London address: 1, *STANLEY HOUSE*, 103, *Marylebone High Street, London, W.*1. *Tel.:* Welbeck 3034.

Guarantee "We guarantee to alter, exchange or accept the return of any appliance without cost ordered by the Medical Profession, if not found Satisfactory within fourteen days from date of supply." Salt and Son Ltd.

SALT & SON LTD · BIRMINGHAM 2

Hsst!

that you Joe?

Just take a look at these shoes, Joe. Like 'em? Well, here's how it's done . . . I ride down town on Spitfire . . . hitch him to the lamp-post by the Bank. Then in I go to the shop next door, both guns blazing. "Stick 'em up!" I bark, "I want a pair of tough shoes that fit. And when I say fit I mean Footgauge! And when I say shoes I mean Clarks!" They didn't argue . . . Pay for 'em? *'Course* not! . . . Mother did.

'Commando'

* Clarks Children's Shoes and Sandals are made in *several widths*, and fitted by Clarks Footgauge for length *and* breadth *and* girth.

Clarks SANDALS

PLANTATION FINISHED CREPE RUBBER SOLES

Next Best to Breast-Milk

MANY Doctors and Nurses prefer to recommend FRESH Cow's Milk—instead of Dried Milk—for their baby patients. And, because of its supreme value in infant feeding, there is plenty of fresh milk available *for every Baby* on application by the Mother at Food Offices.

The addition of a little of Sister Lauras Food (a simple cereal product) makes liquid cow's milk (undiluted) completely digestible by even the youngest and most delicate infant.

The minute quantity of Sister Lauras Food used adds little to the cost of liquid fresh milk. It makes the most satisfactory food available for all babies —no matter what their station in life.

SISTER LAURAS FOOD

MODIFIES FRESH MILK FOR BABIES

2/4 *From all Chemists*

FREE PROFESSIONAL SAMPLES sufficient for a good trial with your difficult babies, are available to Members of the Medical Profession. Write to Sister Lauras Food Co., Ltd. (Dept. BMJ/18 Springfield Works, Bishopbriggs, Near Glasgow.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 29 1950

CARCINOMA OF THE STOMACH*

BY

HAROLD C. EDWARDS, C.B.E., M.S., F.R.C.S.

Surgeon to King's College Hospital, London

[WITH SPECIAL PLATE]

The belief is widespread that cancer of the stomach is less amenable to surgical cure than cancer occurring in most other situations in the body. This may be founded on truth, but the hopelessness which it often arouses is a great deterrent to progress. The thought engenders a sense of futility which blunts endeavour, and offers a ready excuse for failure. It cannot be denied that little comfort can be found in some of the many recent statistical analyses, or from the conclusions drawn therefrom. Harnett (1947), for example, found that only 56 of 1,405 patients alleged to have carcinoma of the stomach lived for five years, and Payne (1940) found that only seven patients out of every 100 suffering from this disease left hospital after an operation which might possibly have resulted in cure. He thought that probably only one of these would survive for five years. Pack and Livingston (1939) epitomized the position by their view that even if every patient with carcinoma of the stomach were admitted to the best surgical clinic in the world 95% of them would be dead of the disease in 18 months.

At a lower ebb still is the statement made by a hospital physician that in six years of practice he had not seen a single patient with carcinoma of the stomach whose life had been usefully prolonged by surgery (Leys, 1937). And, finally, there is a statement made by a surgeon in 1949 that "it [cancer of the stomach] kills, on the average, if untreated, in just over a year. Prolongation of life to a few years, say five, is only exceptionally achieved, thus proving that treatment at present available does not control the disease—in other words, treatment is ineffective."

All these statements conjure up a picture of unrelieved gloom. Whilst one cannot but accept the careful analyses of Harnett and Payne, yet one cannot resist challenging their implication and that of the other statements. For there are certain things which encourage one to view the prospect, not with gloom, but with hopefulness.

It should be asked, "Is cancer of the stomach in its early stages curable? Is it possible to diagnose it before it has passed beyond the bounds of cure by operation?"

The Natural History of Cancer

The average length of time elapsing between the onset of cancer of the stomach and death as a result of it cannot be estimated with certainty, for, even if the onset is regarded as being synchronous with the experience by the patient of symptoms, the truth is difficult to arrive at because of the excusable vagueness of the patient himself. Osler and McCrae (1900) thought that expectation of life rarely exceeded 18 months to two years. They were, incidentally, of the opinion that surgery was less likely to be effective for carcinoma of the stomach than for cancer of the uterus and breast, because of its effect upon nutrition, which hastened the onset of death. This does not imply, however, that cancer of the stomach grows more quickly than cancer elsewhere.

Among my own patients the time elapsing between onset of symptoms and admission to hospital ranges from one month to over 10 years. If all cases with a history of more than five years be excluded, the average length of history in 113 cases between onset of symptoms and attendance at hospital is 16 months. Furthermore, of these 113 patients, 40 were "operable." One cannot help feeling that Cade's (1949) suggestion that the natural history—that is, time of onset to time of burial—averages 12.2 months is wide of the mark. There is also an obvious fallacy in allowing the average natural history of cancer of the stomach, even if it were known, to influence one too strongly. It would be as illogical to do so as to refrain from making provision for one's old age because the allotted span is 70 years.

A Localized Lesion

There is little if any evidence that cancer of the stomach spreads on the average any more quickly than does, say, cancer of the breast, or that it metastasizes sooner. There is indeed every reason for thinking also that it is as easily eradicated by operation at a comparable stage of the disease, for the glandular spread is certainly no wider. And even if the liver is more in the path of spread in cancer of the stomach than in cancer of the breast, skeletal and thoracic secondary deposits are far less common. It is true that radiation has an application to cancer of the breast not shared by cancer of the stomach, but that does not affect the issue *qua* the effectiveness of surgical treatment. In 1900 Mayo Robson had already come to the conclusion that cancer of the stomach was in fact more favourable for radical surgery than cancer of the breast or cancer of the tongue.

The observations made by Versé (1908) are of the greatest interest. He discovered at necropsy a carcinoma of the stomach in each of 12 patients who died from some other cause. No lymph nodes were invaded in any of them, though several were of considerable dimensions and ulcerating. One had been recognized during life. Verse concluded, as a result of these findings, that there is a considerable period during which the therapeutic problem

*Based on an address delivered to the Southampton Medical Society on October 6, 1948.

is purely a local one. Wangensteen (1947) states, also, that of cases in which cancer of the stomach is found at necropsy 25% are confined to the stomach and adjacent lymph nodes.

During the past year I have removed three gastric carcinomas which were shown afterwards to be purely local lesions. Two were suspected on clinical grounds (Cases 1 and 2) and one was discovered by accident.

Case 1.—A woman of 73 had abdominal pain for two years with poor appetite but no appreciable loss of weight. Hb 84%. Acid was within normal limits. No *x*-ray film was taken. Diagnosis was based on the history. Localized cancer was present on the lesser curve (Plate, Fig. 1a).

Case 2.—A man aged 57 had pain for nine months. His appetite was poor and there was some recent loss of weight. *X*-ray examination (twice) was negative. No free acid was found, but there was a brisk response to histamine. Occult blood was negative. Diagnosis was based on the history. Two malignant ulcers were present near the pylorus.

Case 3.—A man of 54, with a 17-years history, underwent simple partial gastrectomy for duodenal ulcer. Carcinoma was found in a specimen 1 in. (2.5 cm.) proximal to the pylorus. ("The earliest carcinoma of the stomach I have ever seen"—Professor Magnus) (Plate, Fig. 1b).

The tragedy is that the patient rarely finds his way to operation while his disease is still a local lesion. This is the reason for the low rate of cure, and the blame lies with the failure to make an early diagnosis. It is not because surgery is unavailing or because the cancer is of an unusually virulent nature that the results are so bad.

Precancerous Changes and the Pyloric Ulcer

No clear relation between the duration of symptoms and the possibility of cure can be established. In 31 of my cases with a recorded history not exceeding three months only eight were operable—in the sense that removal gave prospect of cure. Of 31 with a recorded history of between 3 and 10 years, 10 were operable. Pack and McNeer (1948) record a similar experience. Balfour (1937) finds the prognosis after operation to be better amongst older patients and among those who have a relatively long history, and mentions that the outlook for bulky growths is better than for smaller infiltrating ones.

The inoperable cases with a short history were mostly in people ranging in age from 30 to 45. All of the patients with a long history were over 55. It is possible—even probable—that the early symptoms in the latter group were due to precancerous changes in the gastric mucosa or to pre-existing peptic ulcer.

Judd (1942) believes that there are precancerous changes related to a hyperplasia of mucus-secreting cells, for, he says, there is no evidence of a similar hyperplasia in the non-cancerous stomach. Further evidence that mucosal changes may precede cancer is furnished by Comfort, Kelsey, and Berkson (1948), who found a subnormal gastric acidity in a series of 277 patients who developed cancer and in whom gastric analyses were made two to three years before its onset.

Hurst's (1929) hypothesis that carcinoma of the stomach other than ulcer-cancer is invariably preceded by disease (atrophic gastritis, 75%; chronic gastric ulcer, 20%; simple adenoma, 4.5%) is not confirmed by the morbid-anatomy researches of Magnus (1946). It has, however, been established that changes in the gastric mucosa associated with pernicious anaemia predispose to cancer (Bourne, 1948); Kaplan and Rigler (1947) find the incidence of cancer in sufferers from pernicious anaemia to be 20 times that in the general population.

Cancer Secondary to Ulcer

The controversy regarding the exact position of ulcer in relation to cancer is still with us, and there is little to add to Ewing's (1919) statement that the relation of ulcer to cancer is "rather close, quite obscure, and, as yet, incompletely explained." Whatever may be this relationship, one fact at least is known—that an ulcer crater in the pyloric antrum is either actually malignant or potentially so. It is in my opinion rare to see such change in an ulcer on the lesser curvature. Matthew Stewart's (1931) well-known work is relevant here. He thought that the incidence of the development of cancer in a peptic ulcer was 25% for pyloric ulcers and 4.6% for ulcers elsewhere on the lesser curve.

But what is perhaps more important than argument based on clinical or pathological evidence about the relation between chronic ulcer and malignant disease is the fact that it is impossible, at least in my experience, to distinguish by any known means between a simple ulcer in the pyloric antrum and a malignant one. For this reason all ulcers in this situation should be operated on at once, and without waiting for unequivocal evidence of malignancy. This is illustrated by several cases, of which the following are some examples.

FIGS. 2 and 3.—Pre-pyloric ulcer: (2) is malignant, and (3) is simple. No distinction could be made between the case histories on clinical investigation (Cases 4 and 5).

Case 4.—A married woman aged 55 had epigastric pain for two and a half years. Gastric acidity and blood count were within normal limits. Radiographs showed a pre-pyloric ulcer crater (Fig. 2). Improvement followed medical treatment, and in February, 1946, the patient left hospital clinically improved. In November, 1946, she had a recurrence of symptoms, and was submitted to surgery. A small growth near the pylorus was found at operation, with extension along the gastro-hepatic omentum. There was no obvious spread to the lymphatic nodes. A radical gastrectomy was performed, and microscopy showed an undifferentiated carcinoma. Death occurred 10 months later, with secondary deposits in the liver, the abdominal wall, and the spine.

Case 5.—A man aged 53 had had symptoms for four years and nine months. The blood count was within normal limits, there was a moderately high acid curve, and the test for occult blood was negative. *X*-ray films showed a pre-pyloric ulcer crater (Fig. 3). At operation an indurated ulcer adherent to the pancreas was found just proximal to the pylorus, and

partial gastrectomy was performed. Microscopy showed no evidence of cancer. Three and a half years later the patient is alive and well.

It will be noted that the two case histories and the *x*-ray appearances were almost identical, yet one was malignant and the patient is now dead; and the other simple, and the patient is now in good health.

Case 6.—A diabetic woman aged 47 had complained of discomfort after meals for some years. Three years before she had come to hospital she was comparatively free from pain, but during the six months preceding admission she had suffered renewed pain three-quarters of an hour after meals, was occasionally sick, and had lost one stone (6.4 kg.) in weight. In January, 1948, a barium meal showed an ulcer crater near the pylorus (Fig. 4). Improvement followed medical treatment, and there was some gain in weight. Repeat barium meals in March and April showed persistence of the lesion. There was no free acid, but response to histamine was brisk and the blood count was normal. In view of persistence of the *x*-ray filling defect and a recurrence of symptoms the patient was referred for operation. A hard plaque of growth, with a sandpaper surface, was found near the pylorus, and a radical resection was performed. Microscopy confirmed the diagnosis, and showed secondary growth in one of the glands removed. The patient is alive and in fair health 12 months later, but the prognosis is not good.

FIG. 4.—Pre-pyloric ulcer proved malignant at operation (Case 6).

Case 7.—A man aged 62 was admitted to an E.M.S. hospital in September, 1945. There had been a 12-months history of pain and, later, sickness, but previously he had been healthy. At operation the surgeon noted an indurated area in the wall of the stomach at the pylorus, with no glandular involvement. In spite of the history and the situation of the lesion, it was adjudged to be simple, and a gastro-enterostomy was performed. In February, 1949, after an interval of three and a half years, he was admitted to King's College Hospital in a wasted and anaemic condition, with a swinging temperature. A laparotomy was performed and an inoperable carcinoma near the pylorus was found. Fourteen days later the patient died; Fig. 5 is a photograph of the stomach obtained at post-mortem examination.

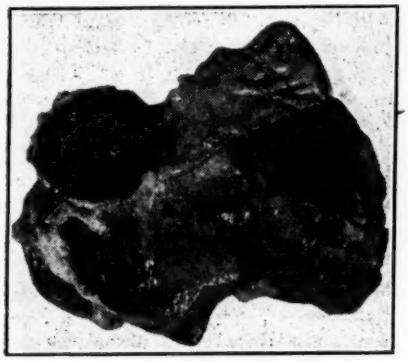


FIG. 5.—Photograph of pyloric region of stomach 3½ years after gastroenterostomy for pyloric ulcer (Case 7).

Case 8.—A man of 58 had complained of epigastric pain of 5–6 months' duration. An *x*-ray film on September 13, 1946, had showed a pre-pyloric ulcer, and he was treated medically. For a period of five months the treatment was effective so far as the symptoms were concerned, but pain then recurred, and the patient was eventually again referred to hospital, 12 months after his first *x*-ray examination. He was now extremely ill, with an Hb of 36%. Free acid was present and there was a response to histamine. At operation a large growth at the pylorus adherent to the pancreas was found. Radical operation was performed, and removal included a portion of the head of the pancreas. On July 8, 1948, nine months after operation, obstructive jaundice was reported, and the patient was last heard of on April 20, 1949. He was then approaching death, with severe jaundice and ascites.

Factors Contributing to Delayed Diagnosis

Negative Findings

It is common knowledge that the patient's reluctance to seek medical advice is one of the chief causes of delay in diagnosis. Harnett found that, of the 1,405 patients with cancer already quoted, 35.5% did not seek advice for an average period of six months. It must be added that 19% of these were treated symptomatically for three months, and that 1% were, it is alleged, told that they had nothing to worry about. Cooper (1941) estimated that in the U.S.A. the patients are responsible for an average delay of eight months. The general practitioner is blamed for an average delay of four and a half months, while delay in hospital before surgery is sought is anything from one to six months.

I do not wish here to enter into a discussion on how best to reduce the delay imposed by the patient on himself. Many suggestions have been made, such as restriction in the sales direct to patients of alkalis, which, as Finch (1948) imaginatively puts it, give rise to "cancers of the stomach buried under mounds of powder"; the receipt, on the fortieth birthday, of a warning letter from a benevolent Minister of Health (Hermon Taylor, 1948); special cancer detection clinics (Wangensteen, 1947); and employment of mass radiography. Fordyce, Swenson, and Harvey (1944) experimented with the latter. Altogether, 2,413 subjects of over 50, with no symptoms referable to the stomach, were *x*-rayed. The total "bag" amounted to three—two carcinomas and one lymphosarcoma.

Some of these suggestions may perhaps be worthy of serious consideration, but here I am more concerned with our own failings. We ought to try to put our own house in order before concentrating upon the problem of how to bring the patient to the doctor.

It goes without saying that the clinician must always himself bear the blame for missed diagnoses, whatever may be the reports from those who are responsible for ancillary methods of diagnosis. The statement is often made that cancer of the stomach does not cause symptoms until a late, and sometimes incurable, stage is reached. This statement is, on the whole, quite erroneous. The ulcer-cancer of the lesser curve (including the pre-pyloric region) always causes symptoms even while the growth still remains localized to the stomach. It is only in cancer affecting the greater curvature and body of the stomach that symptoms referable to the stomach may not arise early. This lag, however, is to some extent compensated by the fact that growths in this region may be well differentiated, and sometimes polypoid, so that they remain a localized lesion for a comparatively long time. In growths of the body and greater curvature, the symptoms are often insidious, and diagnosis requires the most careful elucidation of the history. It is, of course, the patient suffering from cancer in this situation who so often fails to seek advice until the growth is far advanced.

The early symptoms may be gastric discomfort, not at first amounting to pain, but persistently and insidiously increasing; a gradual loss of appetite, going on to frank anorexia; lack of energy, and increasing liability to fatigue; loss of weight; or breathlessness from anaemia.

Case 9.—In February, 1932, a woman aged 54 was referred by Dr. Harold Moody because of increasing tiredness and breathlessness on exertion. A blood count confirmed a secondary anaemia (Hb 56%), and in the gastric residuum fresh blood was found (Dr. R. A. McCance). This led to

FIG. 6.—Carcinoma of greater curvature in woman of 54, whose main symptom was breathlessness on exertion. Patient remains well 17 years after operation (Case 9).

x-ray examination, and to the demonstration of a large defect on the lesser curve. At operation a growth of the mid-gastric region was found, with no evidence of involvement of the serous coat, and no evidence of lymphatic spread. A partial gastrectomy was performed (Fig. 6). The patient made an excellent recovery, and within two months the blood count returned to normal. Over 17 years later, the patient, now 72, reports that she is very well considering her age. An interesting feature is that five years before partial gastrectomy Mr. Norman Lake performed a radical mastectomy for cancer, so the patient has survived for 22 years an operation for cancer of the breast and for 17 years an operation for cancer of the stomach.

It can be taken as axiomatic that gastric symptoms arising for the first time in previously healthy patients of the cancer age always have an organic cause and that the commonest cause is cancer, and that secondary anaemia at the cancer age must have a primary cause and that cancer of the stomach is one of them. The fact that ancillary diagnostic methods give negative results does not in any way disprove these statements. It is merely evidence that these methods are unable to reveal the cause. They do not remove it; and the clinician should insist on discovering it, even to the point of insistence upon exploratory operation.

Radiology

It may seem a little out of place for a surgeon even to hint at criticism of radiology, upon which he depends so much. But many radiologists with whom I have talked agree that there is a very real danger that recourse to surgery, at least for ulcer-cancer, may be retarded rather than accelerated by radiology, for reference of a case to the surgeon often awaits a radiologically demonstrable growth. It often happens that a patient is *x*-rayed at intervals while under medical treatment and is not referred for surgery until the radiologist can say with assurance that the lesion is malignant.

It has been my experience that, by the time the radiologist is in a position to say that an ulcer of the lesser curve or pre-pyloric region is malignant beyond doubt, the growth has passed the stage in which there is probability of cure. Though the growth may be "operable" in the sense that all disease apparent to the naked eye may be eradicable, the prognosis is poor, and may be compared with late cases of carcinoma of the breast in which there is involvement of the overlying skin and enlarged axillary glands. The radiologist, in fact, is often made to carry too heavy a responsibility—more than is justified by the ability of radiography to diagnose with assurance cancer at an early stage. He himself will be the first to admit this. And in the final analysis the real responsibility is the clinician's, who ought to regard radiology as only one, and not the only one, of the sources of information guiding his actions

There is one further point that I hope I may be excused for mentioning. There is a tendency amongst the less-experienced radiologists to include advice to the clinician in their reports. It is far better for the latter to be factual, and not advisory. To quote an example: "Filling defect lesser curve ? simple ? malignant. Advise repeat *x*-ray in two months." Such a report should end at "malignant." Better still would it be if it read: "There is a filling defect on the lesser curve which may be caused by malignant disease."

The Therapeutic Test

Another cause for delay is the "therapeutic test," which is completely fallacious. It is only to be expected that the symptoms of cancer may be considerably relieved by diet and rest. The patient may even put on weight, and an ulcer crater be shown radiologically to shrink in size. The reason for these events may be that, once the growth has breached the mucosa, peptic ulceration begins, and will progress more quickly than ulceration due to the growth itself. It may also respond to medical treatment, with both clinical and radiological improvement. This in fact is the explanation given for the association between ulcer and cancer by those who dispute that peptic ulcers may become malignant.

Such a therapeutic test should be completely eliminated from practice.

Ancillary Methods of Diagnosis Other than Radiology

Gastroscopy may be invaluable, though it is not consistently reliable, and negative findings are not conclusive. Its value is probably not so much in differentiating between a simple and a malignant ulcer, but in defining the presence of a lesion missed radiologically, or in confirming the presence of a lesion when the *x*-ray findings are in doubt. All gastroscopists have had triumphs, to the patient's advantage, and it is idle for detractors of the method to deny its great usefulness.

The *blood picture*, as Osler and McCrae pointed out 50 years ago, follows no recognizable pattern. In 49 of 102 of my patients secondary anaemia was a marked feature; in 46 the blood count was within normal limits; and in seven the red cells were above 5,500,000 per c.mm. The importance of blood examinations is not in differential diagnosis so much as in the fact that the presence of an otherwise unexplained secondary anaemia should lead to an investigation of the stomach as being a possible site of its cause. Ariel, Rekers, Pack, and Rhoads (1943), who found that anaemia occurs in the majority of carcinoma cases, do not think it is caused by deficient ingestion of food and blood loss, for administration of iron fails to secure a response until the growth is removed, when normal ability to respond returns. They suggest that the growth itself interferes with protein metabolism. The test for *occult blood* is usually positive, but in my experience not invariably so.

Gastric Secretions.—Absence of free hydrochloric acid is in favour of a diagnosis of cancer, but its presence, as is well established, is not to be regarded as evidence against cancer. Of 91 of my cases, complete achlorhydria was noted in only 17. There was absence of free acid in 59, 13 of which gave a positive response to histamine. In 14, acid values were within normal limits, and in one it was far above normal. Cancer of the pylorus attacking the robust man who has enjoyed a singular freedom from any complaints from his stomach despite habitual dietetic indiscretions—he whom Schmidt (1911) called the gastric athlete—will often show a normal acid curve. Tabora (1905) thought that lesser-curve growths are likely to be associated with hypochlorhydria, and pyloric cancer with hypersecretion. This, in general, has also been my experience. Of more significance than the acid values is the finding of fresh blood in the residuum.

J. W. WHITTICK: NECROPSY FINDINGS IN Q FEVER

FIG. 1.—Lung. Pneumonic consolidation with thickening of alveolar walls and perivascular tissues by round cells. (× 60.)

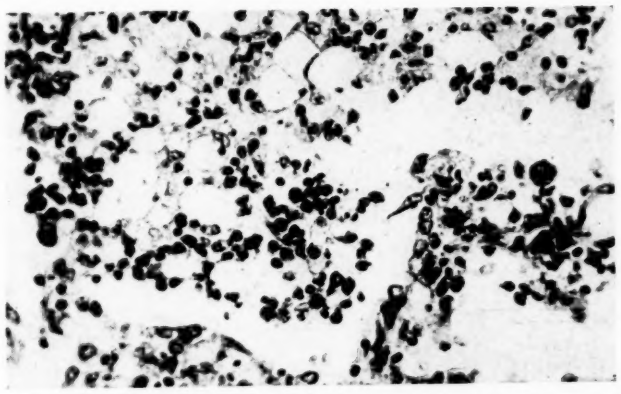


FIG. 2.—Predominantly round-cell exudate in alveolus. (× 400.)

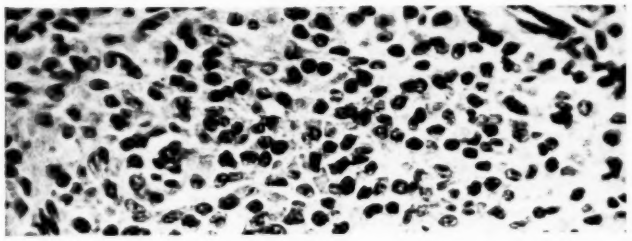


FIG. 3.—Testis. Compact aggregation of macrophages forming nodule. (× 400.)

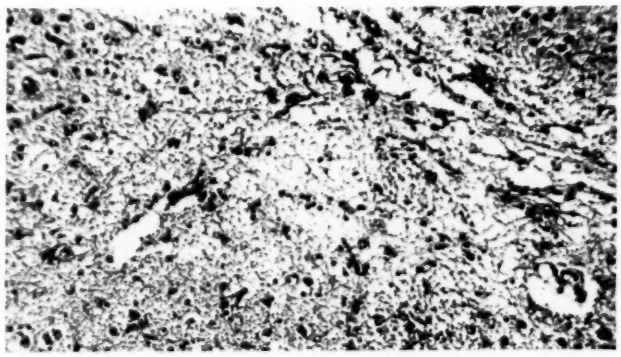


FIG. 4.—Cerebrum. Margin of area of softening. (× 150.)

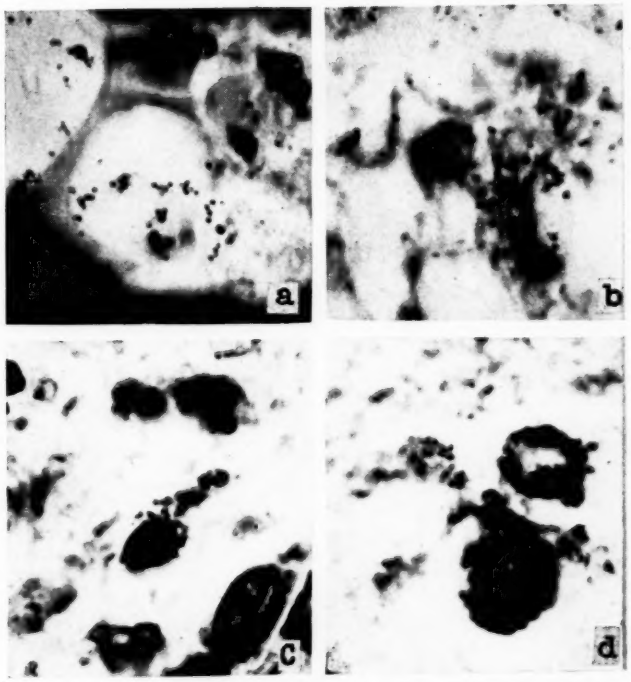


FIG. 5.—(*a*) Extracellular rickettsiae in pulmonary alveolar exudate. (*b*) Intracytoplasmic rickettsiae in pulmonary alveolar exudate. (*c*) Rickettsiae in macrophage of testicular nodule. (*d*) Rickettsiae beside and in neuroglial cells. (All × 1,400.)

B. F. BREARLEY and J. W. LAWS: CARCINOMA OF ISLETS OF LANGERHANS WITH HYPOGLYCAEMIA

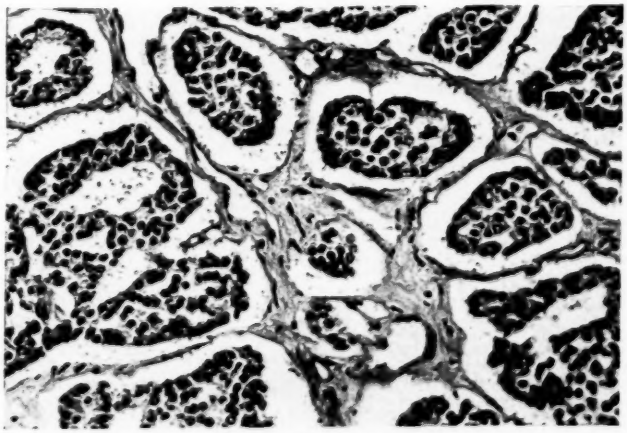


FIG. 1.—Primary tumour. (× 150.)

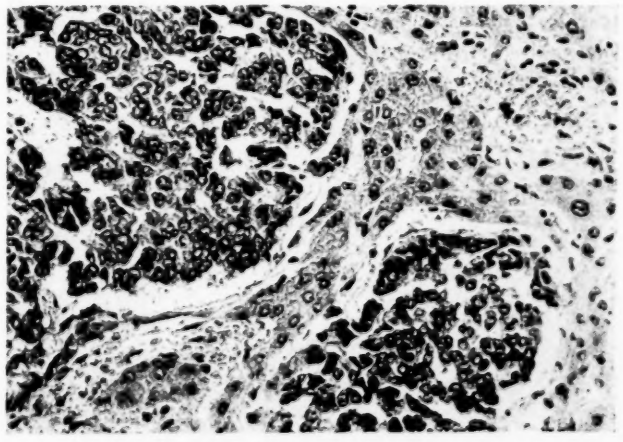


FIG. 2.—Secondary tumour in the liver. (× 150.)

H. C. EDWARDS: CARCINOMA OF THE STOMACH

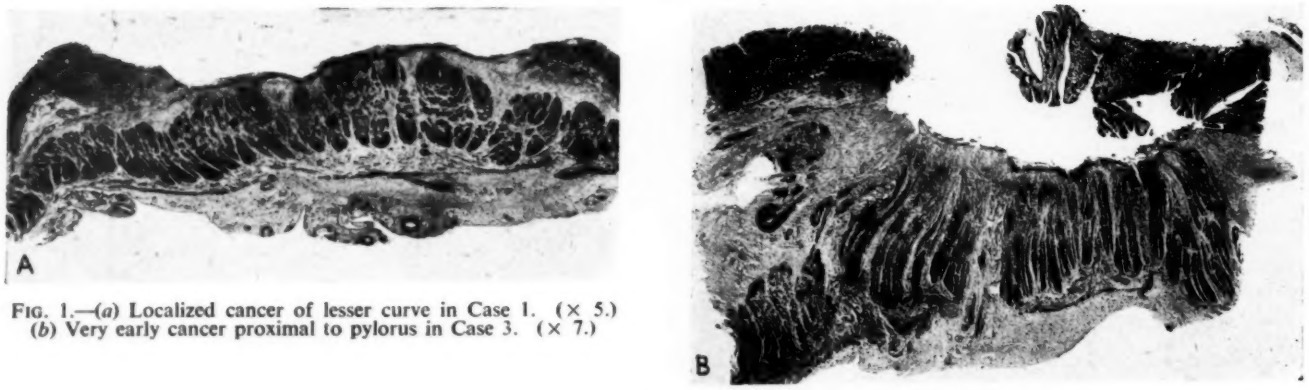


FIG. 1.—(*a*) Localized cancer of lesser curve in Case 1. (× 5.) (*b*) Very early cancer proximal to pylorus in Case 3. (× 7.)

S. BENDER: PLACENTAL METASTASES IN MALIGNANT DISEASE COMPLICATED BY PREGNANCY

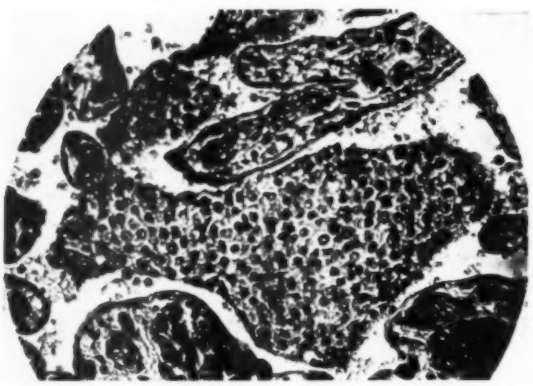


FIG. 1.—Case 4. Metastases of carcinoma in placenta. (× 100.)

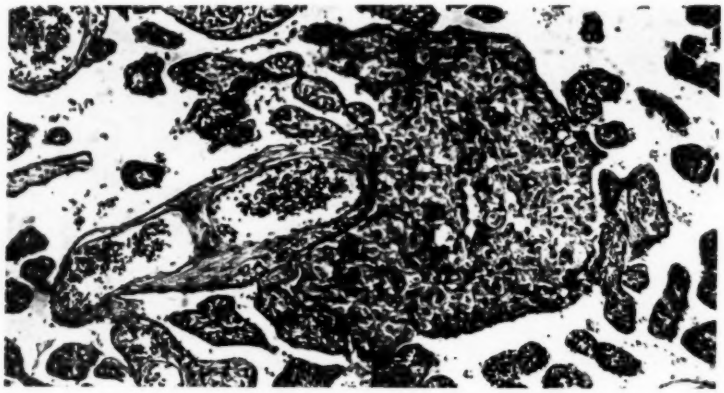


FIG. 3.—Case 6. Placental metastases. (× 100.)

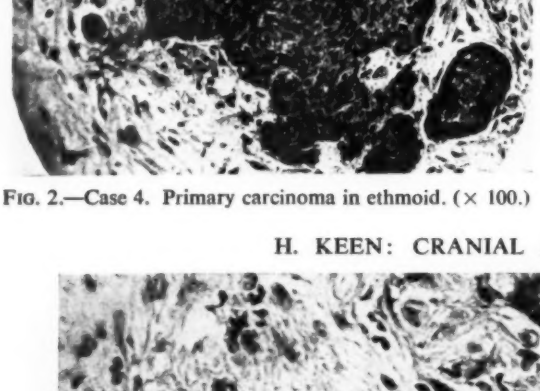


FIG. 2.—Case 4. Primary carcinoma in ethmoid. (× 100.)

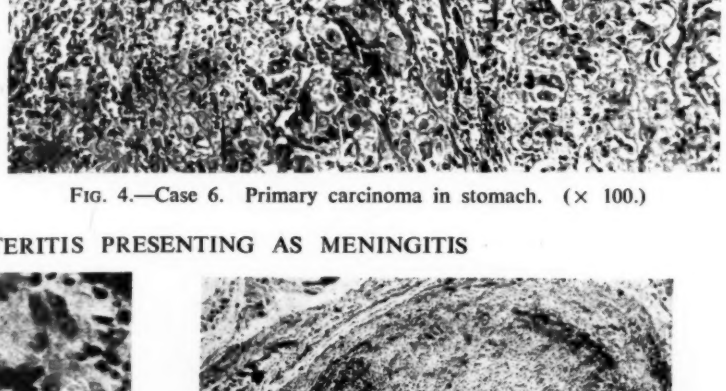


FIG. 4.—Case 6. Primary carcinoma in stomach. (× 100.)

H. KEEN: CRANIAL ARTERITIS PRESENTING AS MENINGITIS

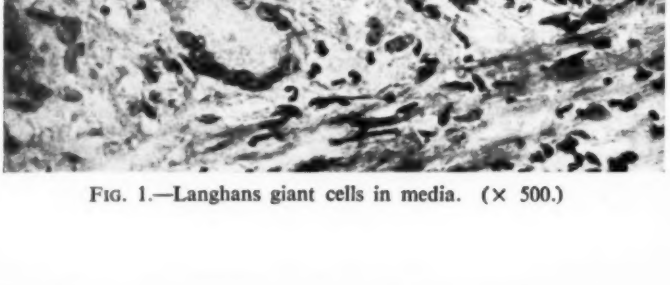


FIG. 1.—Langhans giant cells in media. (× 500.)

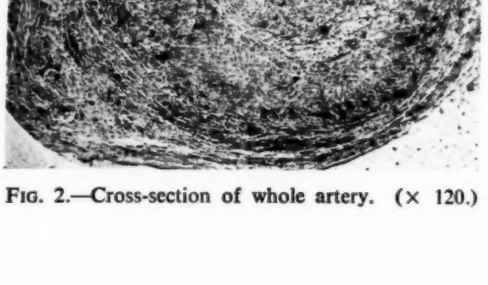


FIG. 2.—Cross-section of whole artery. (× 120.)

Peritoneoscopy is of no value for early diagnosis, but may, according to Narancio, Pierson, McNeer, and Pack (1945), by determining the presence of metastases, be instrumental in saving the patient from unnecessary major surgery. *Biopsy*, both under gastroscopic vision as suggested by Kenamore, Scheff, and Womack (1946), and blindly, as described by Wood, Doig, Motteram, and Hughes (1949), is thought to be of value in the investigation of diffuse lesions of the stomach, but has little or no application here. Of greater usefulness is the microscopical examination of fragments obtained from *gastric lavage* (Einhorn, 1894) or *aspiration* (Hawksley, 1948), when a positive result is diagnostic. Recently, the *smear technique* of cytological diagnosis developed for diagnosis of uterine cancer by Papanicolaou and Traut (1943), and applied to gastric investigation by Graham, Ulfelder, and Green (1948), and other workers, offers great possibilities. As yet, however, few cytologists are available who have had enough experience to recognize with certainty an isolated cancer cell.

Finally, *laparotomy*—though diagnostic *amour-propre* may suffer—must be resorted to when other avenues of inquiry have failed to reveal the cause of the symptoms. I cannot refrain here from quoting Rowlands (1918): "Much time is wasted on laborious attempts to arrive at a diagnosis from various laboratory tests. This 'scientific and deadly delay' (Mayo) often throws away the opportunity of radical and successful operation."

Mention may be made of the occasional positive contribution to health which a negative laparotomy may make. I can record at least two cases in which a negative laparotomy cured "cancer." One of them was that of a doctor with a characteristic history, including loss of weight. Recovery after a negative laparotomy in 1938 was complete, symptoms disappearing and normal weight returning, and the patient served throughout the war in an exacting administrative post in the R.A.M.C.

The Scope of Surgery

Recent momentous advances in pre-operative and post-operative care, anaesthesia, and surgical technique have greatly increased the boundaries of the surgery of gastric cancer, and the small but important group of cases of cancer of the cardia (Welch, 1885—8% of 1,300 cases of carcinoma of the stomach), previously thought to be hopeless, have been brought within the scope of surgical cure. Many surgeons do not hesitate to attempt resection even if a growth has involved the colon, the pancreas, the spleen, and even the liver. Though such extensive operations may not materially affect the rate of cure of cancer of the stomach, there is little doubt that they are justified, first, because the removal of a growth associated with the stomach, even if removal is not complete, may greatly reduce suffering; and, secondly, the improbable sometimes happens, as illustrated by Case 10.

Case 10.—A wizened little man of 52 was admitted to King's College Hospital in April, 1935, after consultation with Dr. Beattie Davidson. He had a mobile lump in the epigastrium as big as a man's fist. For three months previously, and following an attack of influenza, he had felt some pain in the epigastrium, accompanied by flatulence, and there had been much loss of weight. The blood count was within normal limits, and there was complete achlorhydria. The diagnosis of carcinoma of the stomach was so obvious that no *x*-ray confirmation was thought necessary, and the patient was submitted to operation on April 10. The mass was found to be a growth of the greater curvature of the stomach. It had involved the transverse colon, and there were secondary deposits in the glands of the lesser curve. The greater part of the stomach was removed, together with a portion of the transverse colon and the lymphatic field (Fig. 7), and a temporary caecostomy was made after gastro-jejuno-stomy and direct suture of the residual transverse colon. He lived in fair health until August, 1948, 13 years and 4 months after operation, and died from pneumonia.

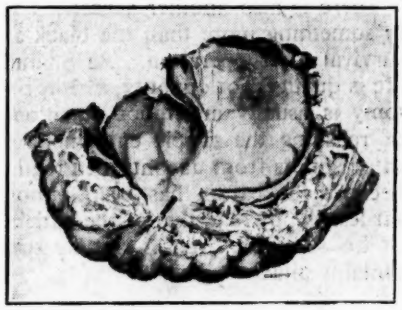


FIG. 7.—"The improbable sometimes happens." Anaplastic carcinoma involving glands on lesser curve and infiltrating transverse colon. Patient lived for 13 years and 4 months after this operation, and died from pneumonia (Case 10)

All recent reports show that the proportion of "resectable" cancers now reaching the surgeon has increased, and that the mortality of operation has greatly decreased during the past decade (Pack and McNeer, 1948; Marshall and Phillips, 1949; Engel, 1947; Walters, Gray, Priestly, and Waugh, 1948), and since the publication of Walton's figures in 1939—figures which could have been equalled by few of his contemporaries and excelled by none. This increase in resectability rate is probably not due so much to earlier diagnosis, though there are very welcome signs of improvement here, as to the great widening of the boundaries of surgery itself.

Extent of the Operation

Surgeons differ considerably in their interpretation of what is meant by the "radical" operation, and also by the term "operable." Such differences are inevitable, and are beyond the scope of this discussion. The important matter is whether it is necessary and advisable to remove the whole stomach in every case of carcinoma. There is no great difference of opinion about this when the growth is in the proximal part of the stomach, but the difference is marked when it is situated in the distal two-thirds.

There are many reasons against interpreting the radical operation to be total gastrectomy. Those who practise this operation as a routine do so because of the danger of recurrence of growth in the gastric stump, and on the more theoretical grounds that it is illogical to remove a part of an organ for cancer (for example, cancer of the breast) and that the barrier to spread of cancer is at the cardia. Recurrence in the stump, however, is not a common cause of failure. Lefèvre (1947), who awaits more evidence before being convinced that total gastrectomy should be a routine measure, found such recurrence as a single feature in only 3 out of 15 reoperations, and in only 9 out of 105 partial gastrectomies for cancer. My own experience, too, is that recurrence here is not common, and when the mortality of total gastrectomy (around 40%) is compared with that of partial or subtotal gastrectomy (around 10%), it is clear that the number of deaths caused by the attempt to avoid recurrence in the stump will greatly exceed failures due to recurrence in the stump.

Walters *et al.* (1948) believe that the removal of the lymph nodes can be as complete in partial as in total gastrectomy, and that when further difficulty is met after partial gastrectomy for cancer it is seldom that recurrence in the stump is the major problem. They think, therefore, that total gastrectomy should be performed only when a less extensive removal would not eradicate all the cancerous tissue in the stomach, and with this I would agree

There is also another aspect. The surgeon is interested in something more than the black-and-white of death and survival after operation. As Stammers (1948) comments, life is quality, not quantity, and the patient after total gastrectomy is usually in a poor nutritional state and incapable of relishing the simple enjoyments of life; moreover, he often suffers from uncontrolled regurgitation into the mouth because the cardia has been removed. His condition is far less happy than that of the patient who retains a portion of his stomach, even if this be small, so that the cardia remains intact.

Palliative Operations

As Lahey, Swinton, and Peelen (1935) pointed out, the number of palliative operations—for example, gastroenterostomy—is being reduced in direct proportion to the widening scope of operability. Most surgeons will agree with Morley (1949) that the best palliative is removal of the growth, even in the knowledge that thereby all cancer present is not eradicated.

Despite contrary views, I hold to the opinion that gastroenterostomy for the relief of pyloric obstruction due to inoperable cancer may sometimes be helpful. It can easily be performed under local analgesia, and the ordeal to the patient is not a serious one. Allison (1949) condemns gastrostomy for the treatment of inoperable growths at the cardia, and prefers to do an oesophago-jejunostomy. Tanner (1947) also recommends a by-pass operation for this condition. Jejunostomy should, I think, never be contemplated.

It would be unwise, however, to dogmatize too freely upon the relative merits of the various palliative procedures, for the circumstances of each individual patient may outweigh considerations based solely upon theoretical reasoning in coming to a decision on what to do. Palliative operations are not likely to affect longevity very much. The most that can be said of them is that they may, on occasion, make the twilight of existence less unbearable.

Summary and Conclusions

Reference is made to the hopelessness in outlook caused by recent statistical reviews and other statements.

The "natural" history of cancer, though it cannot be estimated with accuracy, is not, on the average, as short as is sometimes believed.

The growth may be a localized lesion for a considerable time, and may bear comparison in this respect with carcinoma of the breast.

It is probable that in some types of carcinoma there are diffuse precancerous changes in the mucosa which may themselves be responsible for symptoms.

Ulcers in the pyloric antrum ought always to be regarded as actually or potentially malignant, and should be operated on. It is impossible at an early stage to distinguish between simple and malignant ulcers developing in this situation.

The main reasons for delay in diagnosis attributable to the medical profession are discussed. The importance of the history in diagnosis is stressed, and the danger that radiology may itself be responsible for delay is suggested.

Ancillary diagnostic methods other than radiological are described. None is consistently reliable.

The scope of surgery, the extent of the radical operation, and the nature of palliative operations are reviewed.

The gloomy implications engendered by mass statistics should not be accepted without challenge, for carcinoma of the stomach is as amenable to surgical cure as carcinoma of the breast at a comparable stage of the disease.

In arriving at a diagnosis the history outweighs in significance all ancillary methods, including *x*-ray films. If the history is suggestive, laparotomy should be enjoined despite the fact that other investigations have yielded negative or equivocal results.

The case for routine total gastrectomy for growths of the distal portion of the stomach is not proved, and it is recommended that a portion of the stomach should be left so that the cardia remains intact.

My thanks are due to my colleagues, Mr. A. Wallis Kendall, for permission to make use of data associated with two of his patients, and Professor H. A. Magnus, for histological reports; to my former first assistant, Mr. Sydney Green, and my senior registrar, Mr. H. H. Renyard, for abstracting case records. Mr. A. W. Smith, chief photographer, King's College Hospital, is responsible for the photographs; Mr. E. V. Willmott, of the Postgraduate Medical School of London, for the photomicrographs; and Miss V. D. Kemp, for the drawings.

BIBLIOGRAPHY

Allison, P. R. (1949). *Lancet*, **2**, 91.
Ariel, I., Rekers, P. E., Pack, G. T., and Rhoads, C. P. (1943). *Ann. Surg.*, **118**, 366.
Balfour, D. C. (1937). Ibid., **105**, 733.
Bourne, W. A. (1948). *British Medical Journal*, **1**, 92.
Cade, S. (1949). *Brit. J. Radiol.*, **22**, 331.
Comfort, M. W., Kelsey, M. P., and Berkson, J. (1948). *Proc. Mayo Clin.*, **23**, 135.
Cooper, W. A. (1941). *J. Amer. med. Ass.*, **116**, 2125.
Einhorn, M. (1894). *Med. Rec.*, **45**, 780.
Engel, G. C. (1947). *J. Amer. med. Ass.*, **135**, 687.
Ewing, J. (1919). *Neoplastic Diseases*. Saunders, Philadelphia.
Finch, E. (1948). *Lancet*, **1**, 803.
Fordyce, B. St. J., Swenson, P. C., and Harvey, H. D. (1944). *Ann. Surg.*, **119**, 225.
Graham, R. M., Ulfelder, H., and Green, T. H. (1948). *Surg. Gynec. Obstet.*, **86**, 257.
Harnett, W. L. (1947). *Brit. J. Surg.*, **34**, 379.
Hawksley, J. C., and Cooray, G. H. (1948). *J. Path. Bact.*, **60**, 333.
Hurst, A. F. (1929). *Lancet*, **2**, 1023.
Judd, E. S., jun. (1942). *Surg. Gynec. Obstet.*, **75**, 424.
Kaplan, H. S., and Rigler, L. G. (1947). *J. Lab. clin. Med.*, **32**, 644.
Kenamore, B., Scheff, H., and Womack, N. A. (1946). *Arch. Surg., Chicago*, **52**, 50.
Lahey, F. H., Swinton, N. W., and Peelen, M. (1935). *New Engl. med. J.*, **212**, 863.
Lefèvre, H. (1947). *Rev. Chir., Paris*, **66**, 257.
Leys, D. (1937). *Lancet*, **1**, 1217.
Magnus, H. A. (1946). *J. Path. Bact.*, **58**, 431.
Marshall, S. F., and Phillips, E. S. (1949). *Gastroenterology*, **12**, 748.
Mayo Robson, A. W. (1900). *British Medical Journal*, **1**, 562.
Morley, J. (1949). *Proc. R. Soc. Med.*, **42**, 659.
Narancio, M., Pierson, J. C., McNeer, G., and Pack, G. T. (1945). *Ann. Surg.*, **121**, 185.
Osler, W., and McCrae, T. (1900). *Cancer of the Stomach*. Lewis, London.
Pack, G. T., and Livingston, E. M. (1939). *Amer. J. Surg.*, **45**, 167.
—— and McNeer, G. (1948). *Surgery*, **24**, 769.
Papanicolaou, G. N., and Traut, H. F. (1943). *Diagnosis of Uterine Cancer by Vaginal Smear*. New York.
Payne, R. T. (1940). *Brit. J. Surg.*, **27**, 740.
Perry, C., and Shaw, L. E. (1904). *Guy's Hosp. Rep.*, **58**, 121.
Rowlands, R. P. (1918). Ibid., **69**, 49.
Schmidt, R. (1911). *Interne Klinik der bosärtigen Neubildungen der Bauchorgane*. Berlin and Wien.
Stammers, F. A. R. (1949). *Proc. R. Soc. Med.*, **42**, 667.
Stewart, M. J. (1931). *Lancet*, **2**, 617.
Tabora, von (1905). *Dtsch. med. Wschr.*, **31**, 576.
Tanner, N. C. (1947). *Post.-Grad. med. J.*, **23**, 109.
Taylor, H. (1948). *Lancet*, **1**, 581.
Versé (1908). *Arb. path. Inst. Lpz.*
Walters, W., Gray, H. K., Priestly, J. T., and Waugh, J. M. (1948). *Proc. Mayo Clin.*, **23**, 554.
Walton, A. J. (1939). *British Medical Journal*, **2**, 1127.
Wangensteen, O. H. (1947). *J. Amer. med. Ass.*, **134**, 1161.
Welch, W. H. (1885). In Pepper and Starr's *System of Practical Medicine*, **2**, 530. Philadelphia.
Wood, I. J., Doig, R. K., Motteram, R., and Hughes, A. (1949). *Lancet*, **1**, 18.

The Ministry of Health announces that the arrangements made with the Ministry of Supply for the disposal of Government ambulances "at the pre-surplus stage" have been discontinued. Vehicle auctions will be held monthly at the following Ministry of Supply depots in turn: Royal Ordnance Factory, Kempton Hardwick, Elstow; and Thorp Arch, near Boston Spa, Yorks. The Ministry of Supply will offer at each sale about 1,500 vehicles of various types, including such Austin K.2 ambulances as may be available. Particulars will be published in the *Board of Trade Journal* and the trade press.

NECROPSY FINDINGS IN A CASE OF Q FEVER IN BRITAIN

BY

J. W. WHITTICK, M.B., Ch.B., B.Sc.

(From the Department of Pathology, Royal Cancer Hospital, London)

[WITH SPECIAL PLATE]

Q fever, first described by Derrick (1937) in Australia, was recognized clinically in Great Britain by Harman in 1949 and confirmed serologically by MacCallum *et al.* (1949), who also isolated rickettsiae from one of his cases. Three of Harman's patients had become infected, presumably by inhalation, at the necropsy they performed on a man who died from pneumonia. That *Rickettsia burneti* was the cause of this pneumonia was not suspected until later. Histological examination has since shown the presence of *Rickettsia* bodies not only in the consolidated lungs, as mentioned in Harman's paper, but also in other lesions. In earlier reported fatal cases of Q fever—and these are very few—rickettsiae have not been demonstrated in the tissues.

As the disease is now known to occur in this country, a fuller description of the pathological findings seems necessary.

Clinical History

A tailor aged 78 was admitted for investigation of dysphagia of five weeks' duration. After nearly three weeks in hospital he suddenly became febrile and later developed signs of pneumonia and auricular fibrillation. Despite treatment with sulphonamides and penicillin he became comatose and died 11 days after the onset. No cutaneous rash appeared during his illness.

During radiography of the pharynx, a few days after admission, it had been noted that there was some spilling of barium into the trachea and bronchi. None was seen in the lungs 11 days before death.

Necropsy Findings (24 hours after death).—*Lungs:*—The lower lobe of the right lung was enlarged and completely consolidated, its upper half being red and the lower grey. All other lobes were congested. The right pleural cavity was obliterated by diffuse fibrous adhesions; the left sac was normal. Mucosal congestion and some mucopurulent material were present in the trachea and main bronchi. *Brain:*—There was a group of three or four foci (largest 0.3 cm. in diameter) of softening in the putamen of the right lentiform nucleus, and another (0.5 cm. in diameter) in the basilar part of the upper pons on the left side. *Spleen:*—This was slightly enlarged, with a soft dark reddish-brown pulp. *Testis:*—A pale-brown discrete nodule, 0.3 cm. in diameter, was found in the mediastinum of the right testis. There were no significant changes in other organs.

Histology

Lung.—Sections from the red and grey areas of the diffusely consolidated right lower lobe showed differences due to stages in the pneumonic process. In the red area, consolidation was not uniform, the exudate within alveoli having a patchy distribution. Throughout there was intense congestion of blood vessels. Alveoli were filled with an eosinophil non-fibrillary coagulum in which were a few cells. These consisted of neutrophilic polymorphs and round cells in about equal numbers; red corpuscles were scanty, and were present at only a very few points. The round cells were of different types. A few were lymphocytes and plasma cells, but most were larger mononuclear macrophages which, owing to degenerative changes, varied in appearance from elements of about plasma-cell size with well-stained cytoplasm and dark nuclei to large pale cells with finely granular or vacuolated cytoplasm and vesicular, often peripheral, nuclei. The vacuolated appearance was striking, and was not due to the presence of lipoid: the contents of the vacuoles failed to stain with Sudan III and were not doubly refractile. The exudate within bronchioles was similar to that in the alveoli, though in and about some respiratory bronchioles there was a higher concentration of neutrophilic polymorphs. There was some oedema of interlobular connective tissues and of the walls of blood vessels within them.

In the basal zone of grey hepatization the pneumonic process was more uniform. Here there was little congestion. The alveolar walls were considerably thickened (Plate, Fig. 1), through infiltration by many macrophages and smaller numbers of lymphocytes, plasma cells, and neutrophils. In some there was also early fibroblastic proliferation. Scattered areas showed necrosis and breakdown of septa. Within the alveoli the exudate was cellular (Fig. 2) and consisted mainly of swollen degenerate macrophages with pale finely granular or vacuolated cytoplasm. Red corpuscles were more numerous and often predominated within small groups of distended alveoli. Neutrophils were only slightly more plentiful than in the zone of red hepatization. Swollen, degenerate, roughly fusiform cells lining alveolar walls were peeling off to join the exudate. Bronchioles contained a cellular exudate of similar type, and their mucosae showed degenerative changes with necrosis and loss of epithelium. Oedema and round-cell infiltration had produced much widening of subpleural and interlobular connective tissues, and there was also oedematous thickening of the walls of the interlobular blood vessels. Sections which included the pleura showed a thick layer of fibrous tissue with a ragged outer surface where chronic adhesions had been broken down in removal of the lung.

At only two points in the many sections examined was there any barium. It was very small in amount, and there was no special or concentrated reaction about it. No bacteria could be found in Gram-stained sections.

Brain.—In the foci of cerebral and pontine softening the tissues showed both perivascular and more widespread loosening of texture with occasional small perivascular haemorrhages (Fig. 4). Some of the capillary vessels showed swelling of their endothelium and a few contained thrombi. No perivascular cellular exudate was present in the affected areas, but there was slight marginal increase of neuroglial cells, and these, with Giemsa staining, contained many cytoplasmic granules. Some of the granules were coarse and irregular in shape and were probably degenerative products, the result of clasmatodendrosis, but others were morphologically, and in their grouping, rickettsiae. Support for their identification as rickettsiae was provided by the presence of similar bodies in the cytoplasm of some capillary endothelial cells as well as extracellularly in the damaged areas. The same problem has arisen in typhus, and the criteria applied by Wolbach *et al.* (1922), similar to those given here, appear to be valid. The nervous lesions were probably at a very early stage of development.

Spleen.—The Malpighian bodies were very small, and the pulp was distended with red corpuscles and mononuclear macrophages which had abundant pale granular or finely vacuolated cytoplasm: many were undergoing necrosis. Smaller numbers of lymphocytes and neutrophils were also present.

Testis.—In the mediastinum was a single discrete focus of compactly grouped large macrophages with dark nuclei and granular cytoplasm of polyhedral or indefinite outline (Fig. 3). Capillary blood vessels, accompanied by fibroblasts, were scattered through the nodule, which at its centre showed degenerative changes and loosening of texture. Thrombi were present in small neighbouring veins.

Kidneys.—Apart from cloudy swelling of tubular epithelium, occasional small cortical foci of round-cell infiltration, and ischaemic fibrosis of a few glomeruli, there was nothing of note.

There were no significant changes in other organs, though the liver and pituitary were not available for examination.

Distribution of Rickettsiae

The methods of Giemsa (Wolbach's modification), Castefieda, Macchiavello, and Goodpasture (Goodpasture and Burnett, 1919) were applied to sections. The first and the last (slightly modified) gave the best results and demonstrated great numbers

of both coccoid and bacillary forms of rickettsiae in the lesions of lung, spleen, testis, and brain, where they were both intracellular and extracellular in position (Fig. 5). Macrophages in the first three sites were the chief elements parasitized; while, in the brain, neuroglial cells contained the organisms. In the kidneys smaller numbers were found within tubular epithelium, lying free in the lumen, and also within cells of the intertubular connective tissues.

(Professor A. W. Downie, Liverpool University, has kindly examined sections from the lung, and agrees that the numerous small bodies in the exudate have the morphological and staining characteristics of rickettsiae.)

Discussion

Q fever is rarely fatal. There seem to have been only six other recorded cases—two in Australia (Queensland Ann. Rpt Hlth and Med. Services, 1936–7 and 1938–9) and four in America (Lillie *et al.*, 1941; Irons and Hooper, 1947; Brown *et al.*, 1948). In two of these (Irons and Hooper) necropsy was not made. In all but one case (Queensland Ann. Rpt Hlth and Med. Services, 1936–7) death was due to a diffuse pneumonia of lobar or greater extent with histological features (Lillie *et al.*, 1941; Perrin, 1949) similar to those described here. In its gross appearance the consolidated lung simulates pneumococcal lobar pneumonia, but histologically is quite unlike it, and in its mononuclear exudate and other features resembles psittacosis and other virus pneumonias (Binford and Hauser, 1944). In the two cases in which histological examination was made rickettsiae could not be found.

Changes in the nervous system have not previously been observed in Q fever, nor is there any description of testicular lesions, though both Irons and Hooper (1947) and Gsell (1948), in clinical accounts, report the occurrence of orchitis, and Wegmann (1949) describes the development of symptoms of encephalitis in a patient recovering from Q fever pneumonia.

Splenic enlargement of the "toxic" type described here has been present in other cases.

Summary

A description is given of the pathological changes in the first fatal case of Q fever reported in this country. The patient, a man of 78, died of pneumonia after an acute febrile illness lasting 11 days. All who took part in the necropsy became infected, probably by inhalation.

Numerous rickettsiae were found in the pneumonic exudate, which was predominantly of mononuclear cell type, in lesions of brain, testis, and spleen, and also in the kidneys. This is the first recorded occasion on which they have been demonstrated in human tissues.

I am very grateful to Dr. R. A. Willis for advice, to Dr. A. C. Christie, who performed the necropsy, to Mr. C. G. Chadwin for his expert histological technique, and to Mr. L. A. Cowles for the photomicrographs.

REFERENCES

Binford, C. H., and Hauser, G. H. (1944). *Publ. Hlth Rep., Wash.*, **59**, 1363.
Brown, D. C., Knight, L. A., and Jellison, W. L. (1948). *Calif. Med.*, **69**, 200.
Derrick, E. H. (1937). *Med. J. Aust.*, **2**, 281.
Goodpasture, E. W., and Burnett, F. L. (1919). *Nav. med. Bull., Wash.*, **13**, 177.
Gsell, O. (1948). *Schweiz. med. Wschr.*, **78**, 1.
Harman, J. B. (1949). *Lancet*, **2**, 1028.
Irons, J. V., and Hooper, J. M. (1947). *J. Amer. med. Ass.*, **133**, 815.
Lillie, R. D., Perrin, T. L., and Armstrong, C. (1941). *Publ. Hlth Rep., Wash.*, **56**, 149.
MacCallum, F. O., Marmion, B. P., and Stoker, M. G. P. (1949). *Lancet*, **2**, 1026.
Perrin, T. L. (1949). *Arch. Path.*, **47**, 361.
Queensland Ann. Rpt Hlth and Med. Services, 1936–7, p. 22, and 1938–9, p. 52.
Wegmann, T. (1949). *Schweiz. med. Wschr.*, **79**, 690.
Wolbach, S. B., Todd, J. L., and Palfrey, F. W. (1922). *The Etiology and Pathology of Typhus*, Cambridge, Mass.

PLACENTAL METASTASES IN MALIGNANT DISEASE COMPLICATED BY PREGNANCY

WITH A REPORT OF TWO CASES

BY

S. BENDER, M.D., F.R.C.S.Ed., M.R.C.O.G.

(From the Department of Obstetrics and Gynaecology, Liverpool University)

[WITH SPECIAL PLATE]

According to Willis (1934), "metastasis of maternal tumours to the products of gestation is very rare, the placenta is affected less rarely than the foetus, and foetal metastases probably always arise from placental deposits." This is borne out by the seven previously recorded cases which are summarized in Table I.

TABLE I

Author	Primary Growth	Placental Metastases	Foetal Metastases
Friedreich (1866) ..	Carcinoma of liver	Unknown	Present
Berghinz (1900) ..	Lymphosarcoma	,,	,,
Walz (1906) ..	Myxosarcoma of thigh	Present	Unknown
Markus (1910) ..	Malignant melanoma of ovary	,,	Absent
Senge (1912) ..	Carcinoma of stomach	,,	,,
Weber *et al.* (1930) } Holland (1949) }	Malignant melanoma of thigh	,,	Present
Gray *et al.* (1939) ..	Carcinoma of adrenal cortex	,,	Absent

On the question of how often maternal malignant disease which has metastasized elsewhere has failed to involve the products of gestation very little has been written, although Katsurada (1902) reported a case of malignant melanoma with widespread dissemination in a woman who died at term but in whose uterus and products of gestation no metastases were found. It is particularly surprising that no case has been reported of carcinoma cervicis with pregnancy in which the growth has involved the placenta by direct, vascular, or lymphatic spread. It might be because careful and thorough examination of the products has rarely been carried out in cases of maternal malignant disease. Thus Hinselmann (1925), in his critical review of the cases of Walz, Markus, Senge, and Friedreich, remarked with regard to the last-mentioned that the placenta, although macroscopically normal, "was not properly dissected out because at the time of delivery the importance of the case was not realized." The baby was subsequently found to have a metastatic growth in the left knee. Weber *et al.* (1930) were the first to record a case in which the neoplasm was demonstrated in all three—mother, placenta, and baby. This case has been discussed in further detail by Holland (1949).

During the past year six cases of maternal malignant disease in association with pregnancy have been encountered in this unit, and the findings are given in Table II. In the first of these cases the placenta and cord, which were macroscopically normal, were not examined microscopically, but in the remainder serial sections were studied. In addition, where the foetus was aborted or stillborn a post-mortem examination was carried out, with histological study of the organs.

In all cases of maternal malignant disease thorough histological study of the placenta should be a routine investigation. In this way the frequency of placental metastases might be more accurately estimated. Moreover, the prognosis for the mother may be revealed thereby; for if, in

the absence of evidence of secondary growths elsewhere, metastases are found in the placenta, as in Case 4 recorded below, the prognosis for the mother is obviously very poor.

The purpose of the present communication is to record the fourth and sixth of our cases, which are thus the eighth and ninth in which metastases of a maternal tumour have been found in the products of conception, and the fourth and fifth in which secondary deposits have been demonstrated in the placenta.

Case 4

A married woman was seen first at our unit on February 2, 1949, her last menstrual period having been in mid-July, 1948. She was referred by Mr. John McFarland, who in September, 1948, had carried out radiotherapy and excision for a carcinoma of the left ethmoid. She was then 28 weeks pregnant. Her general condition was not good, there being a purulent discharge from the operation area; and as the pregnancy proceeded her condition deteriorated. She complained of intense lumbo-sacral backache and of shooting pains in the thighs, but no radiological evidence of secondary deposits in bone was found at any time during the pregnancy. Eventually on April 7, 1949, labour was induced by artificial rupture of the membranes in the interests of the mother, and within 16 hours she was delivered of a baby which weighed 5 lb. 10 oz. (2.5 kg.) and was adjudged to be of 37 weeks' maturity. The baby was last seen at 6 months of age, when she was well and weighed 15 lb. 8 oz. (7 kg.).

The placenta weighed 22 oz. (623 g.) and looked macroscopically normal. There were several small white areas, none more than ½ in. (1.25 cm.) wide, long, or deep. Microscopically, there were many plaques of carcinoma in the intervillous spaces (Plate, Fig. 1), but, unlike the cases of Senge and Holland, no tumour cells were seen within the villi. The carcinomatous deposits consisted of darkly staining spheroidal cells of obvious malignant character that resembled those seen in the sections of the original tumour of the ethmoid (Fig. 2) which had been excised six months previously. The white areas were infarcts which contained both placental and tumour tissue, the former preponderating. No metastases were found in the umbilical cord.

After-history.—The patient was transferred to the Liverpool Eye and Ear Hospital 16 days after delivery. Her condition continued to deteriorate and she died on June 13, 1949, 10 weeks after delivery. Permission for post-mortem examination was not obtained, but at the time of death the liver was enlarged, ascites was present, there was a hard mass in the right iliac fossa, and multiple nodules of secondary growth on the scalp; but there was no evidence of recurrence at the site of the original tumour.

Case 6

A married woman aged 40 was sent into hospital on October 16, 1949, because of slight jaundice and pain in the right subcostal area of three weeks' duration. She had been mildly jaundiced for a week in October, 1948. She had had four normal deliveries, the last in 1945. Her last menstrual period had started on March 29, 1949, and the uterus corresponded in height to a 30-weeks pregnancy.

The liver was enlarged so that its lower border was seven fingerbreadths below the costal margin; it was tender and nodular. There was no clue to the site of any primary neoplasm, and the patient was not fit for radiological examination of the gastro-intestinal tract.

Her condition continued to deteriorate and she suffered intense pain in the hepatic region. Five days after admission premature labour began spontaneously and she was delivered of a living male child weighing 2 lb. 15 oz. (1.3 kg.) Eight hours later the mother died. At necropsy a carcinomatous ulcer was found on the greater curvature of the stomach, together with two enlarged regional lymph nodes. The liver, which weighed 9½ lb. (4.3 kg.), was studded with secondaries but no metastases were found elsewhere.

The baby, which was adjudged to be of 30 weeks' maturity, was in poor condition at birth and died 36 hours later. At necropsy there were bilateral atelectasis of the lungs and blood clots in the lateral ventricles of the brain. No metastases were present in any organ.

TABLE II

Case No.	Age	Gravidity	Site of Primary Growth	Method of Termination of Pregnancy	Time of Termination	Placenta	Foetus	Metastases Elsewhere at Time of Termination
1	32	2	Stomach	Induction of labour	37 weeks	Not examined	Alive. Not affected	Peritoneum
2	31	3	Breast	Patient died	20 ,,	Not affected	Not affected	Widespread
3	38	1	,,	Therapeutic abortion	10 ,,	,, ,,	,, ,,	Pelvis and femora
4	22	1	Ethmoid	Induction of labour	37 ,,	Metastases present	Alive. Not affected	None other found
5	32	1	Breast	Died 6 hours after delivery	28 ,,	Not affected	Stillborn. Not affected	Widespread
6	40	5	Stomach	Died 8 hours after delivery	30 ,,	Metastases present	Neonatal death. Not affected	Regional glands and liver

The placenta weighed 14 oz. (397 g.) and looked normal macroscopically. But on naked-eye inspection of sections stained with haematoxylin and eosin certain areas could be picked out because they stained more deeply. Microscopically these areas were numerous foci of undifferentiated spheroidal cancer cells, some with central necrosis. The tumour cells were confined to the intervillous spaces, and although in some places the malignant cells were in contact with villi there was no definite invasion of them (Fig. 3). Specially stained sections did not show any mucin in the placental metastases.

The primary growth in the stomach was a relatively undifferentiated adenocarcinoma with considerable mucoid degeneration (Fig. 4). The enlarged lymph nodes showed the same histological picture, but the metastases in the liver consisted of completely undifferentiated spheroidal cells which in some areas were invading blood vessels. No metastases were found in the cord.

Summary

The eighth and ninth cases of metastasis of a maternal tumour to the products of gestation are described. Secondary deposits were found in the placenta in both cases, but the umbilical cords and the babies were not affected. Both patients died, one eight hours and the other 10 weeks after delivery.

If metastases are present in the placenta in the absence of demonstrable secondaries elsewhere the prognosis for the mother is poor.

These two cases were encountered within a space of seven months, and therefore a plea is made for the routine histological examination of the products of gestation in all cases of maternal malignant disease complicated by pregnancy.

REFERENCES

Berghinz, G. (1900). *J. Amer. med. Ass.*, **34**, 1588.
Friedreich, N. (1866). *Virchows Arch.*, **36**, 465.
Gray, J., Kenny, M., and Sharpey-Schafer, E. P. (1939). *J. Obstet. Gynaec. Brit. Emp.*, **46**, 8.
Hinselmann, H. (1925). In Halban and Seitz's *Biologie und Pathologie des Weibes*, p. 504. Urban and Schwarzenberg, Berlin.
Holland, E. (1949). *J. Obstet. Gynaec. Brit. Emp.*, **56**, 529.
Katsurada, F. (1902). *Beitr. path. Anat.*, **32**, 193.
Markus, N. (1910). *Arch. Gynäk.*, **92**, 659.
Senge, J. (1912). *Beitr. path. Anat.*, **53**, 532.
Walz, K. (1906). *Verh. dtsch. path. Ges.*, **10**, 279.
Weber, F. P., Schwarz, E., and Hellenschmied, R. (1930). *British Medical Journal*, **1**, 537.
Willis, R. A. (1934). *The Spread of Tumours in the Human Body*, p. 404. Churchill, London.

CARCINOMA OF ISLETS OF LANGERHANS WITH HYPOGLYCAEMIA

BY

B. F. BREARLEY, M.B., B.Ch., M.R.C.P.
Senior Medical Registrar, Royal Infirmary, Sheffield

AND

J. W. LAWS, M.B., Ch.B.
Medical Registrar, Royal Infirmary, Sheffield

[WITH SPECIAL PLATE]

Banting and Best isolated insulin in 1921, and Harris formulated his concept of hyperinsulinism in 1924. Since then insulin-secreting tumours have been increasingly recognized. The great majority of these are adenomata, often small and multiple. Frantz (1944), working with Whipple, was able to collect 149 cases of islet-cell tumour with hyperinsulinism: 28 of these were doubtfully malignant and 15 were proved malignant, metastases being found in adjacent organs. Many adenomata have been removed with complete relief of symptoms. The first case of carcinoma with hypoglycaemia was reported by Wilder *et al.* (1927). Since then, including our own, 19 cases have been reported in the literature. To the best of our knowledge ours is the first case to be reported in this country.

In making our selection we have included only cases of carcinoma with metastases and indisputable hypoglycaemia. Cases in which metastases occurred but hypoglycaemia was known to be absent were described as follows: three by Duff and Murray (1942), one by Frantz (1944), and one by Sailer and Zinninger (1946). Fabozzi (1903) described four cases, and Zanetti (1927), Hamdi (1932), Evangelisti (1935), Gordon and Olivetti (1947), and Aragona (1948) each described one case in which there was not sufficient evidence to prove that hypoglycaemia occurred. Willis (1936) described one case in which the primary tumour was thought at first, on histological evidence, to have been in the pancreas; metastases occurred, but there was no hypoglycaemia. Later, after further examination, the tumour was considered to be an argentaffin carcinoma.

Bickel *et al.* (1935) described the case of a male diabetic of 56 years who later developed a carcinoma of the islets of Langerhans with multiple metastases. His liver contained many large secondary growths and little normal tissue remained. In three months the patient's daily excretion of urinary sugar fell from 260 g. to 8 g. and his insulin requirements from 100 units to *nil*. The only blood-sugar level recorded was 211 mg. per 100 ml. Insulin assay showed no insulin to be present in the liver growths, but in the primary tumour it was present "en quantité notable."

TABLE I.—*Summary of 20 Cases of Carcinoma of Islets of Langerhans with Hypoglycaemia*

Year	Name	Sex	Age	Lowest Blood Sugar (mg. per 100 ml.)	Duration of Symptoms in Months	Insulin Assay	Site of Primary in Pancreas	Size of Primary (cm.)	Site of Secondary Deposits	Type of Operation	Result
1927	Wilder *et al.*	M	40	25	20	Present	Tail	8×6×6. Single	Liver and lymph nodes	Cholecystectomy and biopsy of liver	Died 4 weeks p. op.
1931	Fedoroff*	M	31	27	?	Not tested	,,	"Large"	,, ,,	—	—
1934	Judd *et al.*	F	18	45	4	,, ,,	Not stated	Not stated	Liver (no necropsy)	Biopsy of liver	,, 4 weeks p. op.
1934	Jacobsen	M	36	25	12–24	,, ,,	Head	Grapefruit. Single	Liver only	Biopsy	,, 4 months p. op.
1937	Cragg *et al.*	F	41	30	9	Present	Whole	"Diffuse"	Liver and lymph nodes	Biopsy of liver	,, 4 months p. op.
1938	Joachim and Banowitch	F	31	25	3	Not tested	Distal half	6×6×7. "Tangerine"	,, ,, (no necropsy)	Resection of spleen, portion of growth in tail of pancreas and lymph nodes	,, 6 weeks p. op.
1939	Seckel†	M	36	16	12	,, ,,	Proximal half	4×2×2	Generalized	Exploratory laparotomy	,, 10 weeks p. op.
1941	Ballinger	M	53	30	12	Present	Liver‡	10×6×6	,,	Biopsy—tumour of aberrant pancreas	,, 4 months p. op.
1941	Flinn *et al.*	F	45	20	6	Not tested	Head	6	Liver and lymph nodes	No operation	—
1942	Gray§	F	48	27	4½	,, ,,	Tail	1·8×1·8×1·3	Liver	Excision of tumour in tail	,, 6 weeks p. op.
1942	Quarrier and Bingham	M	73	21	1	,, ,,	,,	3	Liver and lymph nodes	No operation	—
1943	Hanno and Banks	M	68	21	19	,, ,,	,,	8×8×6·5	Liver	Biopsy of liver metastases	,, 2 days p. op.
1943	Holman *et al.*	M	45	27	16–24	,, ,,	,,	12×8×8	Liver and lymph nodes	Biopsy of tumour and liver metastases	,, 27 days p. op.
1943	Browning	M	36	12	20	,, ,,	Body and tail	9. Single	,, ,,	Biopsy of liver metastases	,, 14 months p. op.
1944	Brunschwig *et al.*	M	32	14	54	,, ,,	,, ,,	9. Multiple	Liver	Sept., 1939—Excision of two tumours. Jan., 1940—Excision large tumours in body and tail. Aug., 1942—Excision most of head and liver metastases. Dec., 1943—Pancreatico-duodenectomy and excision of liver metastases	Sept., 1942 – June, 1943, *x* rays to epigastrium. June – Aug., 1943, treated with alloxan. Died 2 hours p. op.
1947	Lopez-Kruger and Dockerty	M	42	69	2	,, ,,	Tail	8. Single	Generalized	No operation	—
1947	Gordon and Olivetti	M	46	10	5½	,, ,,	Body and tail	10×7×5	,,	,, ,,	Treated with alloxan
1947	Flinn *et al.*	F	55	37	2½	,, ,,	Tail	4×6	Liver and lymph nodes	Biopsy of liver metastases	,, ,, Died 24 days p. op.
1948	Levrat and Brette	F	31	29	24	,, ,,	Head	"Large"	,, ,,	No operation	—
1949	Brearley and Laws	F	73	25	19	,, ,,	Tail	15×8×7. 760 g. Single	Generalized	,, ,,	—

* Cited by Lopez-Kruger and Dockerty (1947). † Reported also by Brunschwig, Gomori, and Cannon (quoted by Gray, 1942). ‡ Later considered to have arisen in aberrant pancreatic tissue (see text). § Earlier reported by Joslin and later by Marble and McKittrick.

There seems to be little doubt that this was an insulin-secreting carcinoma of the islets of Langerhans with metastases, but those authors do not claim that hypoglycaemia ever occurred.

Twelve of the 20 cases listed in Table I occurred in males and eight in females. The ages vary from 18 years to 73 years. In 13 cases the primary tumour was present in the tail of the pancreas, in four cases it was present in the head, and in two it was recorded as being in the pancreas. Ballinger (1941) considered that in his case the origin of the growth was in aberrant pancreatic tissue in the liver. Frantz (1944), who later saw this patient and was able to review the operative findings, thought that the tumour arose in aberrant pancreatic tissue behind and above the head of the pancreas. This is supported by the work of Faust and Mudgett (1940), who described 370 necropsies with aberrant pancreatic tissue and found that it occurred in this position but not in the liver.

Case History

A woman aged 73 was first seen in the out-patient department on March 28, 1949. She stated that in March, 1948, she began to have frequent headaches and attacks of dizziness on bending down. A short time later she suddenly developed a sharp pain in the mid-epigastrium which radiated round the left costal margin into her back. The pain was intermittent and was sometimes related to movement. It was not related to food. She had anorexia from December, 1948, and in January, 1949, she developed attacks of vomiting. These attacks were also intermittent and did not seem to be related to the pain. She weighed 8 st. 10 lb. (55.3 kg.) and thought that she had lost about a stone (6.4 kg.) during her illness. Bowel movement was normal. There was nothing significant in her past or family history.

On examination she looked well, and there was no obvious wasting. There was no jaundice. Examination of the abdomen revealed a firm rounded mass extending about three finger-breadths below the left costal margin. This moved with respiration and could be pushed forwards from behind. The liver edge was not felt. There was no ascites. She had slight hypertension; her B.P. was 185/110, but her heart was not clinically enlarged. The other systems were normal.

When admitted to hospital on May 2, 1949, her condition had improved. There had been no vomiting for a month, and she was eating well. On clinical examination the mass in the left hypochondrium was the same size as before. On inspiration the liver edge could now be felt one fingerbreadth below the right costal margin. It was firm and smooth, and no nodules could be palpated.

Investigations.—A barium meal showed no evidence of disease of the stomach or duodenum. A radiograph of the chest revealed calcification of the aortic knuckle and a number of healed tuberculous lesions at the right apex. Heart size and diaphragm were normal. Intravenous pyelography revealed normal pelves and calices; enlargement of the left kidney was excluded. Examination of faeces for occult blood was negative on two occasions. A catheter specimen of urine was normal. A blood count showed: haemoglobin, 11.8 g. per 100 ml. (85%); leucocytes, 5,000 per c.mm. (polymorphs 70%); sedimentation rate (Westergren), 25 mm. in 1 hour. Fractional test meal: histamine-refractory achlorhydria. Liver-function tests: see Table II.

Difficulty was experienced in deciding the origin of the tumour in the left hypochondrium. In view of its position, its firm edge, its movement with respiration, its bimanual palpation, and the fact that enlargements of the stomach and left kidney had been excluded radiologically, it was thought to be an enlarged spleen. This, taken in conjunction with the firm enlarged liver, made the diagnosis of cirrhosis with splenomegaly reasonable in spite of the equivocal liver-function tests. The patient was now symptom-free, and she returned home on May 18 to continue on a high-protein and low-fat diet.

TABLE II.—*Liver-function Tests*

	May 11	September 27
Total serum proteins	6·2 g. per 100 ml.	5·5 g. per 100 ml.
,, ,, albumin	4·6 ,, ,, 100 ,,	3·8 ,, ,, 100 ,,
,, ,, globulin	1·6 ,, ,, 100 ,,	1·7 ,, ,, 100 ,,
Serum alkaline phosphatase	41 K.-A. units per 100 ml.	62 K.-A. units per 100 ml.
Thymol turbidity	2	2
Takata-Ara	Negative	Negative
Direct van den Bergh reaction	,,	,,
Serum bilirubin	< 0·2 mg. per 100 ml.	0·4 mg. per 100 ml.

On July 27 she was seen again in the out-patient department and was found to be still free from symptoms.

She was readmitted on September 21, 1949. She had been well until 7 a.m. that day, when she is stated to have collapsed. She had recovered from this at midday. At 5 p.m. she again became drowsy and relapsed into coma.

On admission she was drowsy. Her skin was moist, but she was not hot. Her temperature was 96° F. (36.5° C.) and her pulse rate 84. Examination of her abdomen showed that her liver had increased in size considerably. The edge was now four fingerbreadths below the costal margin; it was hard and irregular. The mass in the left hypochondrium was unchanged. There was no jaundice or ascites. Her blood pressure was 165/95.

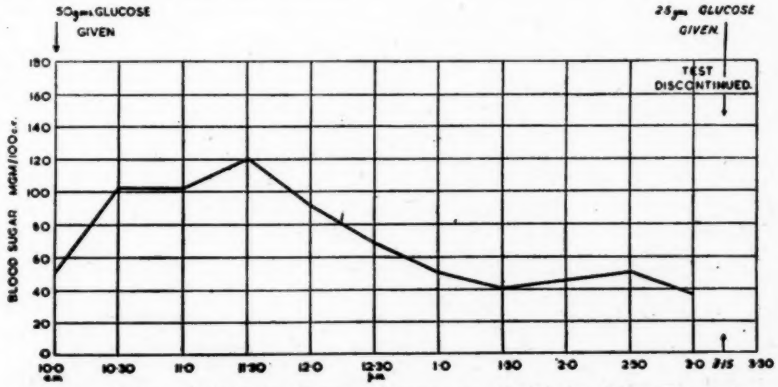


FIG. A.—Chart of six-hour glucose-tolerance test (September 26). The patient received 12 g. of glucose in water every hour during the night preceding the test, up to 8 a.m.

A diagnosis of hypoglycaemic coma was made and a glucose-saline intravenous drip transfusion was started. The blood sugar at this time was found to be 25 mg. per 100 ml. The patient recovered consciousness rapidly. Treatment was continued with frequent small feeds and glucose drinks hourly.

A six-hour glucose-tolerance test was attempted (Fig. A), but this had to be abandoned after five hours owing to hypoglycaemia. The initial blood-sugar level was only 52 mg. per 100 ml. in spite of the fact that 12 g. of sugar had been given of necessity only two hours previously. Liver-function tests were repeated (see Table II). They showed little change except for a further rise in the serum alkaline phosphatase.

At first the patient responded to this treatment. After a few days it became less effective and she tended to lapse into deep coma more easily, especially in the early morning, but she still responded to intravenous hypertonic glucose solution. Later, even hourly glucose drinks failed to prevent coma, and on October 1, 1949, she went into a coma from which she did not recover. She died at 11.50 a.m. on October 2.

Post-mortem Report

Permission was obtained for examination of only the chest and abdomen. At necropsy, performed twenty-four hours after death, the body was found to be well nourished.

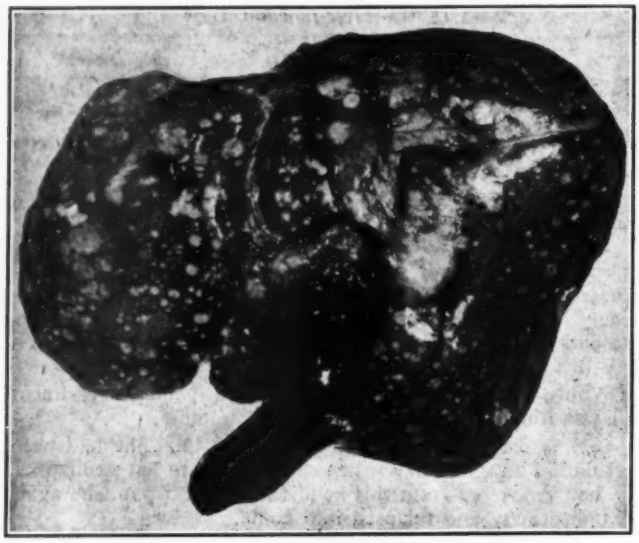


FIG. B.—Inferior surface of liver, showing metastases.

Internal Examination.—Abdomen:—The peritoneum was clean and shiny. There was no ascites. The liver was grossly enlarged (Fig. B) and was filled with metastatic deposits varying in size between 1/6 and 1 in. (0.4 and 2.5 cm.). On the left side under cover of the enlarged liver was a hard lobulated mass lying in the position of the spleen (size 15 by 8 by 7 cm., weight 760 g.). On dissection this was found to be the tail of the pancreas (Fig. C). This mass had displaced the spleen upwards and had the left kidney buried in its posterior surface. A few secondary deposits were present in the omentum and a larger number in the peritoneum, diaphragm, and surrounding lymph nodes. The right adrenal gland contained small metastases. The alimentary tract was followed through and found to be normal. The other abdominal organs were normal. *Thorax:*—There was evidence of old pleurisy on both sides and a large left and smaller right pleural effusion. The lungs were oedematous and friable. Small subpleural deposits were found in both lungs. These were believed to be carcinomatous. The presence of small amounts of pus in the bronchioles was consistent with a terminal bronchopneumonia. The heart was normal. The ascending aorta was atheromatous.

Histology.—Sections of the primary growth (Plate, Fig. 1) and of the metastases in lymph node, suprarenal, and liver (Fig. 2) showed the growth to consist of alveolar masses of round clearish cells, separated by thin strands of fibrous tissue, closely resembling those of islets of Langerhans. All the cells proved to be of chromophobe type. No alpha or beta cells could be demonstrated by specific stains.

Summary of Post-mortem Findings.—Primary carcinoma of islets of Langerhans with secondary deposits in liver, right adrenal gland, peritoneum, diaphragm, pleura, and surrounding lymph nodes.

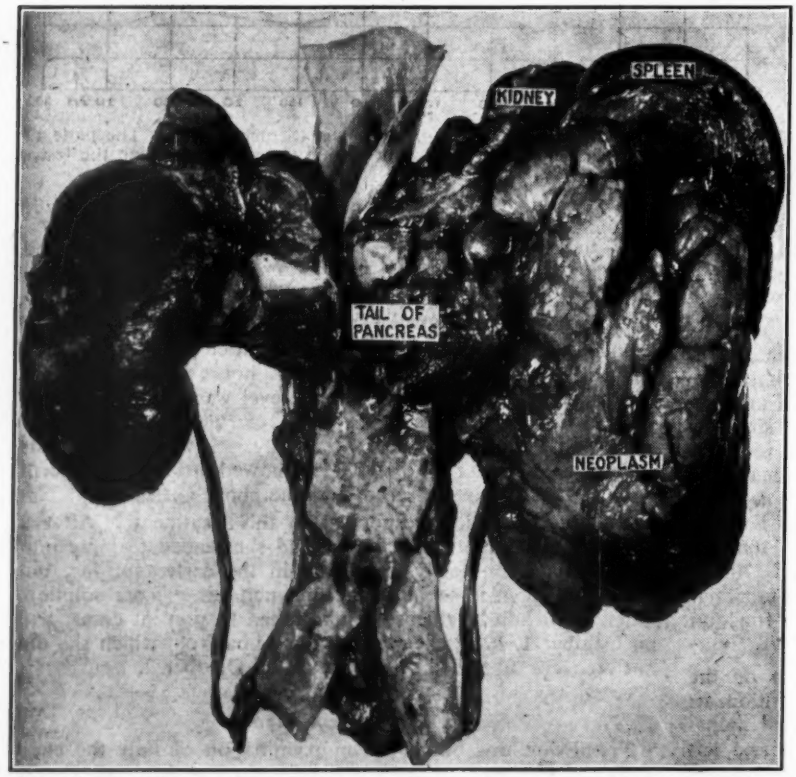


FIG. C.—Anterior aspect, showing the tumour and its relationship to other abdominal organs.

Discussion

The clinical diagnosis after the patient's first admission to hospital was cirrhosis of the liver with splenomegaly. In view of the course of the disease and the severity of the hypoglycaemic attacks which developed, this had now to be reconsidered. There were two probable mechanisms by which this hypoglycaemia could be brought about. One was that the glycogen storage power of the body was deficient because of lack of active liver tissue; the other was that there was an overproduction of insulin. Mann (1927) has shown that in dogs only 15% of normal liver tissue is necessary to maintain adequate carbohydrate metabolism. In man such extreme liver deficiency is usually accompanied by ascites and jaundice. But that hypoglycaemia may occur without these is shown by the cases of Crawford (1931) and Nadler and Wolfer (1929), who describe hypoglycaemia in negroes with large primary hepatic carcinomata. Symptoms of hypoglycaemia may also occur in glycogen disease.

Our patient had a large liver which had rapidly increased in size and a tumour which closely simulated a spleen. There was no jaundice or ascites, and the liver-function tests, apart from the serum alkaline phosphatase, were normal. The glucose-tolerance curve was suggestive of hyperinsulinism.

The differential diagnosis was carcinoma of the islets of Langerhans with gross liver metastases or hypoglycaemia due to cirrhosis of the liver. In either case laparotomy was clearly unjustified and treatment necessarily palliative. It was decided to obtain a biopsy by liver puncture, but by the time the necessary preliminaries had been carried out the patient was *in extremis* and the test had to be abandoned. Clinical evidence pointed to the diagnosis of an islet-cell carcinoma, but in view of the extreme rarity of this condition and the absence of any histological evidence this could not be made with any degree of certainty.

Summary

A case of metastasizing islet-cell carcinoma of the pancreas causing fatal hypoglycaemia is described.

The literature on this subject is reviewed. Nineteen other cases in which the diagnosis is indisputable have been collected. In all, twelve occurred in males and eight in females. The ages varied between 18 and 73 years.

The clinical diagnosis in our patient is discussed.

We wish to thank Dr. H. P. Brody, under whose care the patient was admitted, for his encouragement and advice, Dr. L. C. D. Hermitte for the pathological studies, and Mr. F. Battersby for the photographs.

BIBLIOGRAPHY

Aragona, F. (1948). *Pathologica*, **40**, 94.
Ballinger, J. (1941). *Arch. Path.*, **32**, 277.
Banting, F. G., Best, C. H., Collip, J. B., Campbell, W. R., and Fletcher, A. A. (1922). *Canad. med. Ass. J.*, **12**, 141.
Bickel, G., Mozer, J. J., and Junet, R. (1935). *Bull. Soc. méd. Hôp. Paris*, **51**, 12.
Browning, J. S. (1943). *Ann. intern. Med.*, **19**, 669.
Brunschwig, A. (1941). *Surgery*, **9**, 554.
—— Allen, J. G., Owens, F. M., and Thornton, T. F. (1944). *J. Amer. med. Ass.*, **124**, 212.
Cragg, R. W., Power, M. H., and Lindem, M. C. (1937). *Arch. intern. Med.*, **60**, 88.
Crawford, W. H. (1931). *Amer. J. med. Sci.*, **181**, 496.
Duff, G. L., and Murray, E. G. D. (1942). Ibid., **203**, 437.
Evangelisti, T. (1935). *Policlinico, sez. chir.*, **42**, 384.
Fabozzi, S. (1903). *Beitr. path. Anat.*, **34**, 199. Cited by Lopez-Kruger and Dockerty (1947).
Faust, D. B., and Mudgett, C. C. (1940). *Ann. intern. Med.*, **14**. 717.
Federoff, P. S. (1931). *Vrach. Gaz.*, **35**, 585.
Flinn, L. B., Beatty, G. A., Ginsberg, M., and Hemsath, F. A. (1941). *J. Amer. med. Ass.*, **117**, 283.
—— Minnick, E., and Gay, D. M. (1947). *Ann. intern. Med.*, **26**. 936.
Frantz, V. K. (1944). *Ann. Surg.*, **119**, 824.
Gordon, B. S., and Olivetti, R. G. (1947). *Gastroenterology*, **9**, 409.
Gray, L. M. (1942). *Amer. J. Path.*, **18**, 633.
Hamdi, H. (1932). *Z. Krebsforsch.*, **37**, 411.
Hanno, H. A., and Banks, R. W. (1943). *Ann. Surg.*, **117**, 437.
Harris, S. (1924). *J. Amer. med. Ass.*, **83**, 729.
Holman, E., Wood, D. A., and Stockton, A. B. (1943). *Arch. Surg., Chicago*, **47**, 165.
Jacobsen, V. C. (1934). *Arch. Path.*, **18**, 135
Joachim, H., and Banowitch, M. M. (1938). *Ann. intern. Med.*, **11**, 1754.
Judd, E. S., Faust, L. S., and Dixon, R. K. (1934). *West. J. Surg. Obstet. Gynec.*, **42**, 555.
Levrat, M., and Brette, R. (1948). *Pr. méd.*, **56**, 530.
Lopez-Kruger, R., and Dockerty, M. B. (1947). *Surg. Gynec. Obstet.*, **85**, 495.
Mann, F. C. (1927). *Medicine*, **6**, 419.
Nadler, W. H., and Wolfer, J. A. (1929). *Arch. intern. Med.*, **44**, 700.
Quarrier, S. S., and Bingham, C. T. (1942). *Ann. Surg.*, **115**, 363.
Sailer, S., and Zinninger, M. M. (1946). *Surg. Gynec. Obstet.*, **82**. 301.
Seckel, H. P. G. (1939). *J. clin. Invest.*, **18**, 723.
Wilder, R. M., Allan, F. N., Power, M. H., and Robertson, H. E. (1927). *J. Amer. med. Ass.*, **89**, 348.
Willis, R. A. (1936). *J. Path. Bact.*, **42**, 203.
Zanetti, G. (1927). *Arch. Sci. med.*, **49**, 505.

AUREOMYCIN IN BRUCELLOSIS

BY

E. W. LINDECK, M.R.C.P.

Physician, Royal Sussex County Hospital

Four cases of *Brucella abortus* infection have been treated by "aureomycin," and this paper is a tentative assessment of its value.

Case Reports

Case 1.—A man aged 61 gave one month's history of a febrile illness before his admission to hospital. The agglutination for *Brucella abortus* was found to be positive up to a titre of 1/2,500. On the fifth day after admission he was given aureomycin, 0.25 g., twice a day, and as no reaction to this dosage had occurred 0.25 g. was given three-hourly and continued for nine days (total amount, 18.5 g.). His temperature became normal in 72 hours (Fig. 1). During the course of treatment he experienced some indigestion. There has been no relapse since discharge from hospital 23 weeks ago.

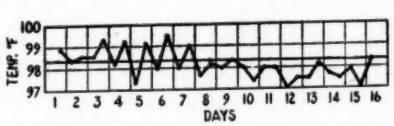


FIG. 1.—Case 1.

Case 2.—A youth aged 14 gave six weeks' history of frontal headaches; there had been no response to a course of a sulphonamide drug. His blood was found to agglutinate *Br. abortus* up to a titre of 1/5,000. The white cells numbered 6,200 per c.mm. (polymorphs 30%, lymphocytes 51%, monocytes 11%, eosinophils 7%, basophils 1%). On the sixth day after admission he was treated with 16 g. of aureomycin spread over 12 days; 0.25 g. being administered twice a day on the first two days, and then four-hourly. The temperature subsided permanently in 72 hours (Fig. 2). When seen eight weeks later

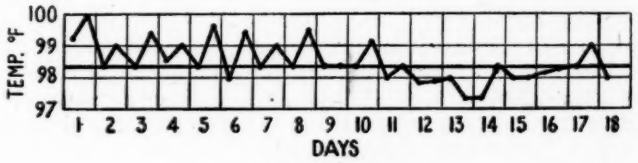


FIG. 2.—Case 2.

his spleen was still palpable, which suggests the possibility of some residual infection; his agglutination titre still remained 1/5,000. Twenty-three weeks later there had been no relapse.

Case 3.—A man aged 46 gave a history of a P.U.O. lasting several months; his blood was found to be positive to *Br. abortus* up to a dilution of 1/2,500. Leucocytes numbered 7,600 (polymorphs 32%, lymphocytes 63%, monocytes 5%). A full course of sulphadiazine produced no improvement. Aureomycin was then begun, 0.1 g. being administered in five divided doses on the first day; this was followed by divided doses of 0.6 g. on the second day, 1.5 g. on the third day, and then 2 g. for three more days—a total of 8.2 g. On the second day of treatment his temperature rose to a higher level than before, but on the fourth day (Fig. 3) it became normal, and remained so until a relapse took place four months later. On this occassion the agglutination titre was 1/500. Leucocytes numbered 5,500 (polymorphs 61%, lymphocytes 33%, monocytes 6%). Aureomycin, 6.2 g., was given on the same plan as before, the temperature subsiding in 48 hours. The patient has remained well for eight and a half months.

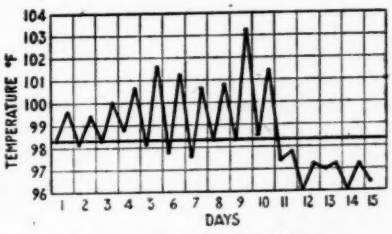


FIG. 3.—Case 3: first illness.

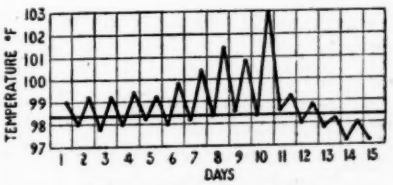


FIG. 4.—Case 3: relapse.

Case 4—A woman aged 25 came with a three-months history of ill-health with intermittent pyrexia. She showed a rising titre of agglutination to *Br. abortus* of 1/250 to 1/500. Aureomycin, 0.75 g., was administered four-hourly for ten and a half days (total quantity, 47.25 g.). She experienced nausea and one vomiting attack during treatment. The temperature subsided on the fourth day and there has been no relapse in six months. Unfortunately a temperature chart is not available.

Discussion

Brucellosis is notoriously a relapsing disease, which makes any claim of cure difficult to substantiate dogmatically after such comparatively short follow-up periods, but in every case quoted aureomycin has at least interrupted the rhythm of the febrile paroxysms, and the patients have been symptom-free. To be quite certain that the disease has been completely eradicated repeated blood cultures would be necessary.

It is evident that there is no standardized dosage. Case 3 relapsed after a course of 8.2 g.; this is evidently too small a total dosage. Spink *et al.* (1948), who treated 24 cases of brucellosis due to *Br. melitensis* (which is apparently

more resistant to aureomycin than *Br. abortus*), found that relapses occurred even after a course of 21 g., and in one case a blood culture was positive after a course of 25 g.; two other cases had positive cultures after 20 and 21 g. These authors at first combined a course of sulphadiazine with the aureomycin, but they discarded the former as it did not appear to influence results. Their final recommendation is that the dosage should be approximately from 4 to 6 g. daily for two weeks. They also describe a "Herxheimer" type of reaction in 12 out of the 24 patients with an abrupt rise of temperature sometimes accompanied by a fall of blood pressure and tachycardia some eight to twelve hours after the initial dose of aureomycin if this was as high as 0.5 g. Therefore they recommend that 0.1 g. should be given in divided doses on the first day, 0.6 g. on the second day, 1.6 g. on the third day, and the full dose on the fourth day. It will be observed from Fig. 3 that there was an abrupt rise of temperature to 103° F. (39.4° C.), in spite of the cautious dosage, on the second day of treatment; there do not seem to have been any serious clinical symptoms. The maximum follow-up in Spink's series of cases is a period of three months; they were well satisfied with the clinical response of patients to treatment.

Knight *et al.* (1949) report five cases of brucellosis treated with aureomycin, four being acute cases and one a bacteriaemia; their standard course consisted of 6 g. on the first day in divided doses, and thereafter 4 g. daily for five days—a total of 26 g. The report suggests that the immediate beneficial result of aureomycin is very striking, but two of the five cases relapsed after 15 and 42 days respectively; the former patient had received 9.5 g. for seven days instead of the standard course; evidently the length of time the drug is administered, as well as the total dosage, has to be taken into consideration. Knight *et al.* (1949) also record a "Herxheimer" type of reaction in one of their patients. Side-effects consisting of gastric disturbances were unimportant. Their maximum follow-up period was five months.

Heilman (1949) reports that in mice aureomycin alone is not particularly effective in reducing the number of brucella in the spleen of infected mice; aureomycin combined with streptomycin or dehydrostreptomycin was the most effective, but even this combination did not eliminate all the organisms. Herrell and Barker (1949), at the same clinic, employed subsequently a combination of aureomycin (3 g. in divided doses daily) and dehydrostreptomycin (1 g. twice a day intramuscularly for 12 to 14 days) in four cases with initial success; the infecting organisms were *Br. suis* two cases and *Br. abortus* two cases. Their blood cultures after treatment in each case were negative, which suggests a permanent cure. Spink *et al.* (1948) had previously used streptomycin, but discarded it because of its unfortunate effect on the labyrinth. No such effect is recorded with dehydrostreptomycin.

In the present state of our knowledge it would therefore appear reasonable, in an average case of brucellosis in this country, to employ aureomycin in doses of 4 to 6 g. daily for a fortnight, with smaller amounts on the first three days (0.1 g., 0.6 g., and 1.6 g. in divided doses). The ease of administration by the oral route and the lack of important side-effects are important considerations. Should the case prove resistant or relapse frequently, dehydrostreptomycin and aureomycin in the dosage suggested by Herrell and Barker might well be employed.

It is to be hoped that further cases treated with aureomycin and controlled by subsequent blood cultures will soon be published by others.

My thanks are due to Dr. W. A. Bourne and to Dr. John Cumming, of Hove, for particulars of one case, to Dr. A. Head, of Storrington, Sussex, for particulars of another; also to Dr. Bremner, of Hove Hospital, and Dr. Pearson, of the Royal Sussex County Hospital.

REFERENCES

Heilman, F. R. (1949). *Proc. Mayo Clin.*, **24**, 133.
Herrell, W. E., and Barker, T. E. (1949). Ibid., **24**, 138.
Knight, V., Ruiz-Sanchez, F., Ruiz Sancho, A., and McDermott, W. (1949). *Amer. J. Med.*, **6**, 407.
Spink, W. W., Braude, A. I., Costaneda, M., and Goyta, L. (1948). *J. Amer. med. Ass.*, **138**, 1145.

BRACHIAL NEURALGIA

BY

W. M. PHILIP, M.B., M.R.C.P.
Assistant Physician, Selly Oak Hospital, Birmingham

The syndrome of sciatica due to a prolapsed intervertebral disk is well recognized, and in essence consists of symptoms and signs resulting from irritation of a single nerve root. The muscles supplied by the root are tender, painful, and weak, while pain radiates down the dermatome, and frequently paraesthesia, numbness, sensory loss, and interference with the appropriate reflex arc are present. In addition, there is often a history of lumbago, and examination reveals protective spasm of the erectores spinae.

Brachial neuralgia is at present a less exact diagnosis than sciatica, and includes many diseases in which the presenting symptom is pain radiating down the arm; but there is a group of cases in which the symptoms are those of root irritation comparable to that found in sciatica, and in these a diagnosis of prolapsed intervertebral disk is commonly made. There are, however, reasons for believing that such a lesion is not the commonest cause of brachial neuralgia, and that, instead of a prolapse of the nucleus pulposus, arthritic changes in the neurocentral joint are the most usual source of root irritation in the neck (Lund, 1945; Bull, 1948).

A total of 66 cases has been selected from those seen personally in the out-patient department. Each has borne a superficial resemblance to brachial neuralgia, but of these cases 24 have been discarded as belonging to a miscellaneous group which defies classification. In all the others (42) it has seemed probable that the symptoms were the result of irritation of one or more cervical roots; the diagnosis was made primarily on clinical grounds, and the criteria on which individual cases were assessed were: (1) Radiation of pain into the arm. Usually this was referred accurately enough to one or more dermatomes to permit clinical location of the lesion. In only five cases was this not so. (2) Pain with or without tenderness in the muscles supplied by the appropriate root. (3) *X*-ray changes corresponding with the root involved.

A single root appeared to be involved in 24 cases, and it is in these in which the disease is localized that one may expect to find the characteristic *x*-ray appearances. The roots affected were: root 5, 1 case; root 6, 7 cases; root 7, 15 cases; root 8, 1 case.

With the multiplication of levels and the development of hypertrophic spondylitis, every variety of change may be found. The important point is that narrowing of the disk and the lesions that result from it are so constantly seen: in only two cases out of the 24 were the radiographs entirely normal. In the remaining cases the lesions were both clinically and radiologically multiple; in 10 the symptoms were bilateral, but one rather striking feature is the way in

which gross osteophytic protrusions into the intervertebral foramina can occur without the production of symptoms.

Osteophytes were demonstrable in the region of the neurocentral joint in 21 cases; the apophysial joint alone seemed to be involved only once. In two cases no oblique views were taken, but from other evidence it is probable that osteoarthritis with pressure on the root was the cause of symptoms; thus in 24 cases arthritis appeared to be the essential factor.

Of the other 18 cases a clinical diagnosis of prolapsed disk was made in 6, but in the remaining 12 cases it was not possible to make a more exact diagnosis than "root irritation." Three of these developed a periarthritis of the shoulder, which may have been responsible for most of the symptoms. Five of these indefinite cases may have been examples of the "costoclavicular syndrome," though in four of them there were also *x*-ray changes in the cervical spine.

In three cases an attack of sciatica occurred at one time or another, and one may wonder whether there is not some factor, at present unknown, which predisposes to disk lesions. This association has been noted before (Brain, 1948b).

It has been suggested by Keegan (1947) that the patient with a single root lesion can, when tested with a pin, usually map out an area corresponding to the anatomical dermatome. His cases were regarded mainly as prolapsed disks, and perhaps the degree of root compression in these is greater than is usually seen in osteoarthritis. In the present series of 42, definite sensory loss was found in only four cases, and two of these were probably prolapsed disks, while in the other two the arthritic changes were gross. Nevertheless, the patient's description of the symptoms referred to the dermatome gives the best clinical guide to the root involved: objective signs of any sort are usually absent.

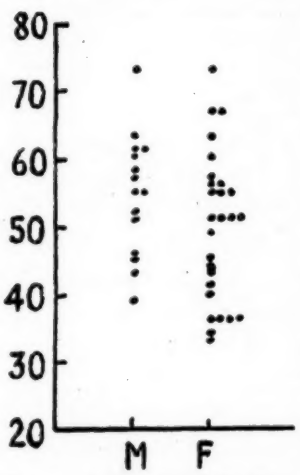


FIG. 1.—Age and sex distribution.

The age and sex distribution is shown in Fig. 1, and the incidence of symptoms and signs in the Table.

Incidence of Symptoms and Signs in 42 Cases

			No. of Cases
Onset	Gradual		30
	Sudden		12
History of trauma			3
Bilateral symptoms			10
Pain	Muscular	Shoulder girdle	34
		Pectoral	4
	Dermatome		37
Paraesthesia			24
Sensory loss			4
Diminution of tendon reflexes			4
Wasting			4

Illustrative Cases

Case 1: Diagnosis—Prolapsed Intervertebral Disk.—A bank clerk aged 43 woke up on the morning of March 15, 1949, with pain in his right shoulder. It started in the back of the shoulder and gradually worked its way down the arm into the middle and index fingers of the right hand. At the time of his examination, five weeks later, he had developed "pins and needles" in these fingers and had noticed that the pain was worse when he coughed or if he flexed the neck to the affected side. The right triceps jerk was diminished and there was considerable muscular tenderness in the triceps and supraspinatus. The root of the neck was tender and there was sensory loss to pinprick over the index and middle fingers of the right hand and along a band running as high as the elbow. A radiograph showed loss of the normal curve of the cervical spine at the disk between C6 and C7 (Fig. 2). There were no osteophytes in the foramen (Fig. 3). After resting in bed at home for a month the pain remained so severe that he was admitted to hospital; the neck was stretched, using tension of 10 lb. (4.5 kg.). Almost immediately he found that while his neck was on the stretch the pain was absent from his arm. His symptoms gradually abated and the sensation returned to the area from which it had been lost.

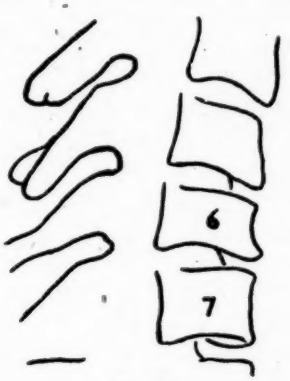


FIG. 2.

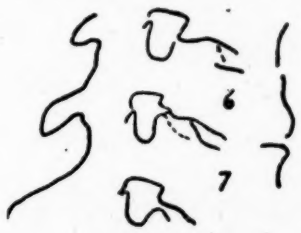


FIG. 3.

Case 2: Diagnosis—Arthritis of the Neurocentral Joint.—A polisher aged 63 began to notice pain in his right shoulder five weeks before he attended the out-patient department. This gradually developed and extended down the outer part of his right forearm into the back of his hand: he also had some pain in his chest wall, but there was no paraesthesia. The pain was neither relieved nor aggravated by anything in particular, but he noticed that it was worse at night and disturbed his sleep. Examination revealed no physical signs except for creaking in his neck and some local pain when the cervical spine was moved. A radiograph showed narrowing of the disk space between C6 and C7, but only slight loss of the normal curve. The oblique view revealed considerable narrowing of the intervertebral foramen as the result of osteophytes (Fig. 4). With adequate rest to the arm he largely lost the pain, but eventually had to give up his work as a polisher because he found that excessive use of the arm brought on further attacks.

Case 3: Diagnosis—Arthritis of the Spine, probably with Prolapse of the Intervertebral Disk.—A car inspector aged 57 began to notice numbness and tingling in the left little finger 15 months before attending as an out-patient, and soon afterwards pain appeared and his symptoms began to get steadily worse. Eventually all the fingers, but not the thumb, of the left hand were affected and pain developed in the other hand. Three months before he first attended he noticed that his right leg was becoming weak and tended to drag, and about the same time he was troubled by a stiff neck. The significant findings were as follows: the skin of the hands was smooth and shiny, and there was weakness of the grip on both sides. Both arms were hypertonic and there was clonus of the right wrist. At times fibrillation was seen in the arms and the pectoral muscles. There was a partial loss to pinprick on the trunk below the level of D3 and there was also a band of hypoalgesia down the back of each arm which faded into a loss of sensation of glove distribution on the hands. Vibration sense was impaired on the right side of the trunk and the right leg. The right abdominal reflexes were absent and the right plantar response was probably extensor. A radiograph

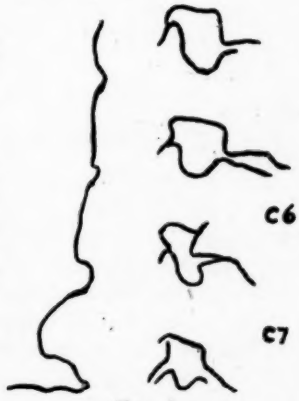


FIG. 4.

showed gross osteoarthritis of the cervical spine with posterior osteophytes encroaching on the vertebral canal. Similar changes were apparent around the margins of the vertebral bodies, from the lower border of C4 to the upper border of C7. The main posterior projection was between C5 and 6 (Fig. 5). Foraminal lesions were pronounced at each level. Lumbar puncture showed a partial block on jugular compression, but there was no change in composition of the C.S.F. Laminectomy was performed over C4, 5, 6, and part of 7, and an attempt was made to decompress the roots most affected, but haemorrhage prevented this. The patient made an uninterrupted recovery from the operation and nine months later had regained the sensation in arms and trunk, but the pain and trophic changes were still severe in the hand, and his walking, although improved, was still affected.

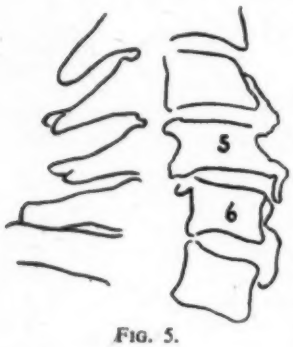


FIG. 5.

Anatomy

In the cervical region the bodies of the vertebrae are not completely separated from each other, as they are in the lumbar region, by the intervertebral disks. Radiographs taken in the antero-posterior and oblique positions show the neurocentral joint, which forms the antero-medial boundary of the intervertebral foramen. This joint is described by Frazer (1940), and it lies in such a position that any exostoses which might form on its margins would be bound to encroach on the intervertebral foramen at its narrowest point. Tracings of oblique radiographs of the intervertebral foramen illustrate the position of this joint (Fig. 6). The outline of an isolated vertebra in approximately the same position is included for comparison (Fig. 7).

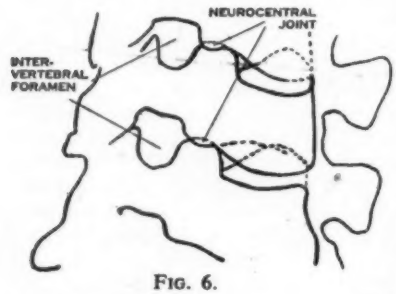


FIG. 6.

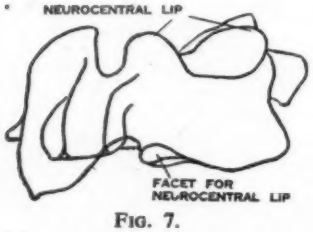


FIG. 7.

The postero-lateral wall of the intervertebral foramen is formed by the pedicle and the overhanging lip of the apophysial joint, and between this wall and the neurocentral joint lie the dorsal root and the anterior root of the spinal nerve (Fig. 8).

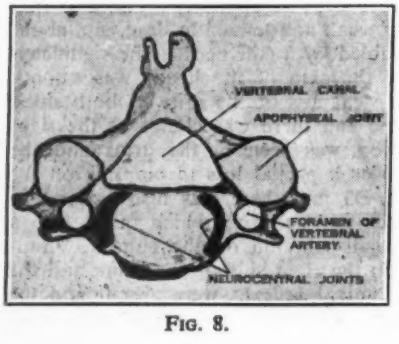


FIG. 8.

Pathogenesis

One of two things may happen in the first instance, but the end-result of both is roughly the same. Either the nucleus pulposus may herniate and penetrate the neuro-central joint or a slow degeneration of the disk takes place.

In the first case the prolapsed nucleus presses on the nerve, but at the same time there is an appreciable loss of disk substance with probably a demonstrable narrowing of the disk space. The damage to the joint makes it highly probable that arthritis will follow later. In the second case the process is insidious and loss of disk substance ensues gradually. In both cases the normal cushioning effect of the disk is lost and the weight of the head is borne by the neurocentral joints. These act as a fulcrum about which an angular collapse of the upper vertebral body takes place on the lower, with consequent loss of the normal curve of the cervical spine at the point of the lesion.

As a result of this unaccustomed strain osteophytes appear around the neurocentral joint, and these protrude into the intervertebral foramen. With progressive damage the neurocentral lips collapse and eventually the curve of the spine is restored. Now there is narrowing of the intervertebral foramen in the vertical plane as well as that due to arthritis of the neurocentral joints.

X-ray Findings

As in the lumbar region radiographs may be entirely negative in cases of prolapsed disk. The earliest radiological sign, seen in the lateral view, is loss of the normal curve and narrowing of the disk space at the site of the lesion. Later the oblique views show osteophytes arising in the neurocentral joints and protruding into the intervertebral foramen. The apophysial joints seem to be less commonly affected: their normal range of movement would obviously allow them to compensate for a slight forward tilt.

Opinion is divided on the value of myelography, but it would seem that in the case of arthritis of the neurocentral joint no change could be expected in the myelogram.

Differential Diagnosis

In the presence of brachial neuralgia the differential diagnosis resolves itself into a consideration of some relatively uncommon possibilities (for example, tumours of the vertebrae or nerves) and three common causes. The distinction is not always as easy in practice as it is in theory.

1. *Osteoarthritis of the Spine* (usually the neurocentral joint).—Characteristically, there is an insidious onset in an elderly person of pain in the muscles and down one or both arms, often into one or two fingers of the thumb. Tenderness of the muscles is often the only physical sign. Sometimes the symptoms are precipitated by minor trauma, such as excessive use of the arm. From the nature of its pathogenesis the condition is often bilateral and often more than one level is affected. Radiographs show the presence of osteophytes encroaching on the intervertebral foramen.

2. *Prolapsed Intervertebral Disk.*—The onset here is typically sudden and affects a slightly younger age group. There may be a preceding or associated pain in the neck similar to the lumbago so common with sciatica, and similarly the condition is unilateral. Physical signs such as loss of tendon reflexes and demonstrable sensory loss are likely to occur. A test which is considered pathognomonic is the neck-compression test. In this the head is flexed to the side of the lesion and pressure applied on top. The compression causes pain to radiate down the affected dermatome. Knight (1948) states that this is not invariably positive. Spurling and Scoville (1944) point out that a positive test theoretically rules out spasm of the scalenus anticus as a cause for the symptoms, because by this manœuvre this muscle is relaxed; the sign is negative when the root irritation is the result of the comparatively rigid and incompressible osteoarthritic neurocentral joint.

Regardless of the cause of root irritation the scalenus anticus is apt to be tender along with other muscles supplied by the root, and therefore pressure over the brachial plexus in the root of the neck gives rise to pain. Brain (1943a) states that pain in the neck is common in cases of herniated disk, and points out that loss of disk space without osteoarthritis is suggestive of this lesion.

3. *The "Drooping Shoulder Girdle Syndrome."*—This has had its province extended far beyond the bounds of reason. There is no question that minor abnormalities of the thoracic outlet can give rise to symptoms, but some authors claim that compression of the fifth, sixth, and seventh roots can occur at the thoracic outlet or between the slips of origin or insertion of the scalene muscles (Swank and Simeone, 1944; Kirgis and Reed, 1948). Walshe *et al.* (1944) speculate whether acroparaesthesia and acrocyanosis may not be a minor expression of this syndrome, but do not suggest that brachial neuralgia with symptoms referred to one of the higher roots can result from similar causes. Spurling and Scoville (1944) agree that it is only T1 and C8 which can reasonably be involved in this syndrome, and certainly if one of the higher roots should be involved it is difficult to see how the lower roots could at the same time escape. Nachlas (1942) believes that the scalene angle is widened by the contraction of this muscle, and points out that involvement of the posterior muscles, whose nerve supply arises high up, excludes the possibility that the cause of symptoms is in the costoclavicular region. The concept of a primary spasm of the scalenus anticus seems to be somewhat nebulous, and if spasm of this muscle occurs the most likely explanation is that it is in fact due to a lesion of the nerve root or roots.

The typical syndrome of the drooping shoulder girdle or costoclavicular syndrome is not as common as brachial neuralgia. It is precipitated by unaccustomed strain such as the carrying of heavy weights or by some general illness which lowers the tone of the muscles supporting the shoulder girdle.

Treatment

Spontaneous recovery usually occurs after some weeks or months, but is often only partial. Because there is so little to show for their symptoms patients are reluctant to take adequate rest, and indeed may be prejudiced against doing so because they often find that the pain is worse at night and when they are in bed. Nevertheless, rest is the most important factor in treatment, and if the patient can remain in bed this should be advised. In less severe cases a sling may be adequate, and sometimes immobilization of the neck in plaster or in a brace will help, but not all patients will tolerate this, particularly if there is a lot of muscular tenderness in the shoulder girdle.

Physiotherapy is useful, and the injection of procaine into persistently tender areas in the muscles may give lasting relief, but the patient should be warned that when the immediate effect of the injection wears off there will be a temporary increase in the pain. Elliott and Kremer (1945) have shown that electromyographic changes are found in these tender spots, and that the changes disappear after a procaine injection. Elliott (1944) states that such relief does not exclude a root lesion.

In a few cases admission to hospital becomes necessary. Extension of the neck is worth trying, and in cases of prolapsed disk may be strikingly beneficial. As a last resort, if all else fails, the patient can be offered an operation. This is neither so easy nor so successful as the operation for sciatica, and involves risk of damage to the cord. Localization can nearly always be obtained on clinical grounds and confirmed by oblique radiographs. Evidence of long-tract compression, except in the very old, strengthens the case for laminectomy. If it is suspected that costoclavicular compression plays an important part, scalenotomy is a comparatively simple operation and is worth a trial where the doubt persists.

Besides the case reported in detail (Case 3), a laminectomy was performed in two cases in which symptoms remained in spite of all conservative measures. Both derived considerable benefit, though the improvement was slow in one of them. In neither case was it possible to remove the underlying cause—osteophytes in one and probably a disk protrusion in the other.

Summary

Forty-two cases of brachial neuralgia are reviewed. The importance of the neurocentral joint is underlined and the significance of the radiological changes in the cervical spine, especially narrowing of the disk space, is indicated. The differential diagnosis is discussed.

I am indebted to Mr. G. R. Clarke, surgeon to Selly Oak Hospital, for help in dissections of the neck and for operating on some of the cases.

REFERENCES

Brain, W. R. (1948a). *Lancet*, **1**, 393.
—— (1948b). *Proc. R. Soc. Med.*, **41**, 509.
Bull, J. W. D. (1948). Ibid., **41**, 513.
Elliott, F. A. (1944). *Lancet*, **1**, 47.
—— and Kremer, M. (1945). Ibid., **1**, 4.
Frazer, J. E. (1940). *Anatomy of the Human Skeleton*. London.
Keegan, J. J. (1947). *J. Neurosurg.*, **4**, 115.
Kirgis, H. D., and Reed, A. F. (1948). *Ann. Surg.*, **127**, 1182.
Knight, G. C. (1948). *Proc. R. Soc. Med.*, **41**, 511.
Lund, M. (1945). *Acta psychiat., Kbh.*, **20**, 1.
Nachlas, I. W. (1942). *Sth. med. J.*, **35**, 663.
Spurling, R. G., and Scoville, W. B. (1944). *Surg. Gynec. Obstet.*, **78**, 350.
Swank, R. L., and Simeone, F. A. (1944). *Arch. Neurol. Psychiat., Chicago*, **51**, 432.
Walshe, F. M. R., Jackson, H., and Wyburn-Mason, R. (1944). *Brain*, **67**, 141.

COMPLETE EXCISION OF THE PAROTID GLAND WITH PRESERVATION OF THE FACIAL NERVE

BY

H. A. KIDD, F.R.C.S.Ed., M.R.C.O.G.

Senior Surgeon, St. Helier Hospital

This operation was first performed by Carwardine in 1907, but has not been widely adopted. Hamilton Bailey (1939) has described his technique and experience with the operation, and has also given a very interesting account of the anatomy of the parotid gland (Hamilton Bailey, 1948). D. State (1949), in America, is also an advocate of total parotidectomy as the method of choice for mixed parotid tumours.

The specialized technique, which the advent of intratracheal anaesthesia and electro-coagulation has simplified, is not described in modern textbooks, nor is it familiar to many surgeons. This operation should preserve all the branches of the seventh nerve and be followed by a complete recovery of the function of that nerve: it can therefore be performed, without fear of disfigurement, for the cure of a variety of pathological lesions. In frank malignant disease sacrifice of the facial nerve may be an unfortunate necessity, but in other lesions facial palsy is an avoidable tragedy.

Mixed tumours form the majority of parotid tumours and usually occur after the fourth decade. The diagnosis is not always easy, but the history is of considerable assistance. They grow very slowly and have been present

for a number of years before the patient seeks help. Sudden increase in size, a short history with a large tumour, or a hard fixed tumour suggests malignancy.

These tumours are not radiosensitive, and although they often feel spherical they are not truly so, but have a lobulated surface. Local excision without visualization of the branches of the seventh nerve will often result in a small portion of tumour being shaved off. Recurrences are thus frequent: Wood (1904) quoted 50%, Benedict and Meigs (1930) 42.5%, Stein and Geschickter (1934) 20%, Ahlbom (1935) 20–25%, and McFarland (1936) 25%. Hybbinette's (1940) method of incision into the tumour and then dissecting it out with a finger inside it is said to give better results, especially if followed by implantation of radium.

The distribution of the branches of the facial nerve varies very considerably, but, as shown by McCormack *et al.* (1945), conforms to seven main patterns. Hamilton Bailey (1948) has drawn attention to the collar-stud shape of the gland with the main branches surrounding the waist, but I do not believe it true to say that the gland is not traversed by many of the smaller branches. I think it advisable to preserve these branches.

Edwin Clausen and Bruce Henley (1948) report on the treatment of eight parotid tumours by parotidectomy and dissection of the facial nerve. They recommend exposure of the inferior mandibular branch first and use an electrical stimulator.

The operation I perform varies in several important details from that described by Hamilton Bailey (1939). In non-malignant cases I have never had to tie the external carotid artery, and the dissection is begun by finding the cervical facial branch in the submaxillary triangle and tracing it back until it joins the main stem. This has the advantage of enabling the surgeon to approach the main nerve at the correct depth and from below and behind. Mobilization of the lower and posterior border of the gland is facilitated.

Technique of Operation

Anaesthesia.—Intratracheal intubation with the administration of a non-inflammable anaesthetic is essential. Thiopentone, followed by gas, oxygen, and "trilene," is probably the best.

Incision.—A curved incision is made behind the angle of the jaw and extended upwards so as to split the apex of the tragus.

Haemostasis.—There is a free haemorrhage, but the use of diathermy coagulation in conjunction with a good suction apparatus enables the haemorrhage to be controlled and all dissection to be carried out under direct vision. It is not possible to apply ligatures to every individual bleeding-point.

Exposure of the Facial Nerve.—The cervical branch of the cervico-facial division can be identified, as it runs just below and parallel to the horizontal portion of the mandible, at the point where it pierces the deep fascia. It is then traced back, after division of the fascia, until the main cervico-facial division of the nerve is found. Dissection is made along the inferior border of the nerve, and only the communicating branches from the great auricular are divided. The temporal artery is ligated and the temporo-maxillary vein is now divided between ligatures and the main branch of the facial nerve traced back to the stylo-mastoid foramen. The posterior border of the parotid gland can now be defined after division of its fascial covering. The nerve is at first deeply placed, but lies superficial to the external carotid artery. As it traverses the gland the numerous divisions become quite superficial, but are no thicker than pieces of thread. Each branch is exposed by inserting a pair of mosquito artery forceps parallel to the nerve and then dividing the superficial tissue. By this means the gland is split and all the branches of the nerve are preserved. Stensen's duct is divided and ligated, and the transverse facial artery also requires ligation. Once the nerve and its branches have been cleared the remnants of the deep portion of the gland can be dissected out.

Closure of the Wound.—Haemostasis is secured by use of the diathermy, and the upper part of the wound closed by horsehair sutures. A rubber tissue drain is inserted and the remainder of the wound closed with Michel clips. Acriflavine is used to clean the wound, but sulphonamide powder should not be instilled owing to the danger of fibrosis and compression of the nerve.

The operation averages two and a half hours in duration, and the anatomical arrangement of the branches of the nerves is found to vary considerably. The three main branches of the temporo-facial division—the temporal, malar, and infra-orbital—can be identified, as well as the buccal and supramandibular branch of the cervico-facial division.

The use of the diathermy for checking haemorrhage and of fine mosquito forceps for opening up the nerve tunnels simplifies a rather tedious dissection.

This operation was first performed by me in 1943, and has been employed for the following conditions: lipomatosis, caseous tuberculosis, chronic inflammation, mixed tumours, adenoma, and carcinoma.

Post-operative Complications

If the main auriculo-temporal or great auricular nerves are damaged, numbness of part of the ear may result. This happened in two cases, but it gradually became less troublesome. Two patients have complained of the Frey syndrome, which is a watery discharge from the skin over the side of the face after meals, and sometimes hot flushings. This may be less liable to occur if the auriculo-temporal nerve has been divided. The time of onset of the complication was five months and eight months, respectively, after operation.

Case Reports

Case 1.—A married woman aged 53 was seen in the out-patient department on November 5, 1943, and admitted the same day. In the upper part of the parotid there was a hard tumour which was not circumscribed, and the history was of a lump in the right side of the face for one year that had been gradually increasing in size, with swelling and pain. On November 9, under intratracheal gas, oxygen, and trilene, the gland was resected and a rubber tissue drain inserted for 48 hours. Convalescence was uneventful, but there was a considerable degree of facial palsy. A facial splint was applied and electrotherapy given. In six months recovery was complete. Dr. Roland John's report on the section was as follows: "Lipomatosis and atrophy of parotid and salivary gland."

Case 2.—A married woman aged 44 was admitted on December 31, 1943, with a history of swelling in the parotid for nine weeks. There was no pain on mastication. Tonsillectomy had been performed in 1930, and there had been some swelling of the upper cervical glands before the occurrence of the tumour. There was a very hard fixed swelling about the size of a cherry in the position of the pre-auricular gland. The blood pressure was 180/100, and *x*-ray examination of the chest was negative for tuberculosis. The cervical glands were not enlarged. At operation on January 4, 1944, a tumour the size of a hazel nut was found in the substance of the parotid, and the whole gland was completely excised. The wound was drained, and convalescence was uneventful. On section the tumour contained thick green pus, and Dr. Roland John reported: "Caseous tuberculosis of lymphatic glands lying in

relation to serous salivary gland; slight fatty atrophy of otherwise normal serous salivary gland." The caseating gland belonged to the intraparotid group, and was in relation to the external carotid artery. Facial paresis was present after the operation, but responded to the same treatment as in Case 1.

Case 3.—A married woman aged 44 was admitted on January 29, 1944. She complained of a lump which had been present since an attack of influenza about a month previously. The tumour had been increasing in size and was tender on pressure and fixed. The cervical glands were not enlarged, but there was an occasional rise of temperature to 99° F. (37.2° C.). *X*-ray examination of the chest was negative for tuberculosis, but the condition was thought to be tuberculous. At operation on February 1 under thiopentone, gas, oxygen, and chloroform, the gland was excised and the facial nerve dissected out. The wound was closed, with drainage, and during convalescence there was some pyrexia, which responded to sulphathiazole. The patient was discharged on February 12. Treatment was similar to that of Cases 1 and 2, and complete recovery ensued. Dr. Roland John reported: "Subacute inflammation of parotid salivary gland; subacute inflammation of lymphatic glands." This patient would very probably have recovered without operation, but, in view of the history, operation was thought to be advisable if the facial nerve could be preserved.

Case 4.—A married woman aged 42 was seen on August 3, 1945, because of a right parotid tumour which had been present for four years. She was then pregnant, and was seen again on September 19, 1946. At operation on September 28 total excision of the parotid with preservation of the facial nerve was carried out. She was treated by physiotherapy, with almost full recovery in three months. Pathological report: "Mixed salivary tumour with abundant soft ground substance. No evidence of malignancy."

Case 5.—A man aged 46 was admitted on January 14, 1947, with a history of tumour of the left parotid for three years. The swelling increased after eating. At operation on January 21 the parotid gland was totally excised, with preservation of the facial nerve. Figs. 1 and 2 show the distribution of the nerve in this case and in Case 6. Pathological report: "Organizing acute chronic inflammation — fibrosis of parotid—lymph gland actively functioning. No evidence of malignancy." He recovered facial movement, except of the left lower lip.

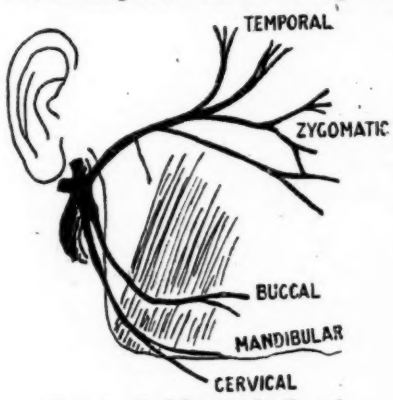


FIG. 1.—Facial nerve in Case 5.

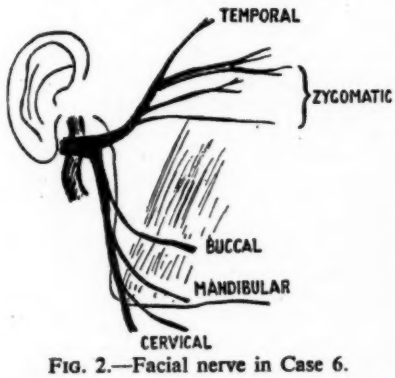


FIG. 2.—Facial nerve in Case 6.

Case 6.—A married woman aged 44 was seen on January 28, 1947. She had had a tumour of the right parotid for ten years. Cystic nodules were adherent to skin below the lobe of the right ear. At operation on February 14 complete excision of the parotid with preservation of the facial nerve was carried out. She was given physiotherapy, and recovery was slow. Pathological report: "Adenomatous nodule. Probably mixed tumour with a predominant epithelial element. No evidence of malignancy." A recent follow-up showed no evidence of recurrence.

Case 7.—A man aged 88 was admitted on November 19, 1947, with a history of swelling of the right ear for three months with pain at night. He believes it started as a mosquito bite. There was a watery discharge for one month. *X*-ray examination suggested the presence of a calculus. Total parotidectomy (under local analgesia), with preservation of the facial nerve, and removal of the upper group of lymphatic glands were performed on November 25. Pathological report: "Adenocarcinoma and squamous metaplasia." On January 13, 1948, a nodule occurred in the scar, and this was widely removed and the area skin-grafted. Pathological report: "Section shows invasion by well-differentiated, rather pleomorphic squamous epithelioma." By May 11 full movement of the face had been recovered, except for a branch of the lower lip. There has been no recurrence up to the time of writing.

Case 8.—A man aged 30 had had a left parotid tumour 1 in. (2.5 cm.) in diameter for four years. At operation on November 9, 1949, total parotidectomy was performed. Pathological report: "Mixed salivary tumour." He was discharged home on November 16. There was slight paresis of the left lower face. Complete recovery occurred in two months, and there has been no recurrence.

Case 9.—A man aged 64 was admitted on February 22, 1949, with a history of right parotid tumour for two years, gradually getting larger. There were no enlarged glands. Auricular fibrillation was present and the blood pressure was 210/140. At operation on February 23 total parotidectomy was performed. The cervico-facial division was sacrificed. Glands were dissected out. The tumour was 2 in. (5 cm.) in diameter. Pathological report: "Adenocarcinoma." The patient was discharged on March 6. Full recovery of paralysis, except for the lower lip, occurred in two months, and there has been no recurrence.

Comments

Nine cases have been treated by total parotidectomy. Full recovery of the facial nerve has been achieved in six. Two cases have some paresis of the lower lip only, and in one of these the cervico-facial branch was, deliberately divided. One case is too recent to have obtained complete recovery, but there is no reason to think that it will not occur.

All cases have been recently assessed and most carefully tested for full recovery, which includes voluntary movement of the alae nasi.

The technique described enables the difficulties inherent in this dissection to be overcome, and, although the operating time is between two and three hours, it is hoped that other surgeons will be encouraged to adopt this method of treatment, which affords a better chance for cure and avoids the tragedy of permanent facial palsy.

Summary

Some anatomical and pathological aspects of the removal of the parotid gland are discussed.

The technique of the operation for total removal of the parotid gland with preservation of the facial nerve has been described.

Nine cases are reported.

References

Ahlbom, H. E. (1935). *Acta radiol. scand.*, Suppl. **23**, 1.
Bailey, Hamilton (1939). *Proc. R. Soc. Med.*, **32**, 1383.
—— (1948). *British Medical Journal*, **2**, 245.
Benedict, E. B., and Meigs, J. V. (1930). *Surg. Gynec. Obstet.*, **51**, 626.
Carwardine, T. (1907). *Lancet*, **2**, 892.
Clausen, Edwin G., and Henley, R. Bruce (1948). *Calif. med.*, **68**, 366.
Hybbinette (1940). Quoted by Ahlbom in *Treatment of Cancer and Allied Diseases*, **1**, 479. Edited by G. T. Pack and E. M. Livingstone, New York.
McCormack, L. J., *et al.* (1945). *Surg. Gynec. Obstet.*, **80**, 620.
McFarland, J. (1936). Ibid., **63**, 457.
State, D. (1949). Ibid., **89**, 237.
Stein, I., and Geschickter, C. F. (1934). *Arch. Surg., Chicago*, **28**, 492.
Wood, F. C. (1904). *Ann. Surg.*, **39**, 57, 207.

SCARLET FEVER AND TONSILLITIS IN RELATION TO ACUTE RHEUMATISM

BY

T. C. MACDONALD, A.F.C., M.D., D.P.H.

Wing Commander, R.A.F.

While the infectious nature of rheumatic fever was postulated by Hirsch the aetiologic agent is still not positively identified. The various hypotheses have been set forth by Hadfield and Garrod (1947), who say: "It seems to us indisputable that more progress has been made towards identifying haemolytic streptococci as the cause of this disease than in any other direction."

Galabin (1902) and Longstaff (1904–5) showed the relationship between mortality rates of rheumatic fever, erysipelas, scarlet fever, septicaemia, and puerperal fever. Atwater (1927) published similar figures.

Accurate morbidity figures are not so easy to obtain. It was felt, therefore, that some information might be drawn from R.A.F. and W.A.A.F. sickness records, as these had certain advantages not usually found. The numbers were large, the population at risk was known, medical care was at all times easy of access, and the recording system is well tried. There is no difference in nutrition, whether in quality or in quantity of food; clothing is identical, and living conditions vary very little. There is a rough standardization for age by the fact that children, adolescents, and the aged are not in the Service. The figures for the sexes are given separately. On the other hand, one condition which facilitates infection by *Streptococcus pyogenes* is present. This is the communal living and, in particular, sleeping in barrack rooms. Other factors are overcrowding and constant influx of newcomers into each little community. I will consider only figures for the Forces in this country.

The figures (Tables I and II, Figs. 1 and 2) are obtained from the Air Ministry (1938–45) and from Department MA7 of the Medical Directorate General, which kindly supplied the figures for 1946 and 1947, which have not yet been published.

Comments

Glover (1942) discussed rheumatic fever in closed communities and showed its relationship with tonsillitis. It will be observed that when a very large number of samples are taken this relationship vanishes or almost vanishes. This is not surprising, as the diagnosis "tonsillitis" unsupported by bacteriological proof is a blunderbuss term. There is some hint of resemblance in the male statistics but none in the female. It will be seen, too, that the tonsillitis figures remain about the same level throughout, while rheumatic fever shows a tendency to drop.

"Tonsillitis" as an indicator of impending acute rheumatic cases would seem to be of little value.

The resemblance between the morbidity of scarlet fever and rheumatic fever is remarkable. This

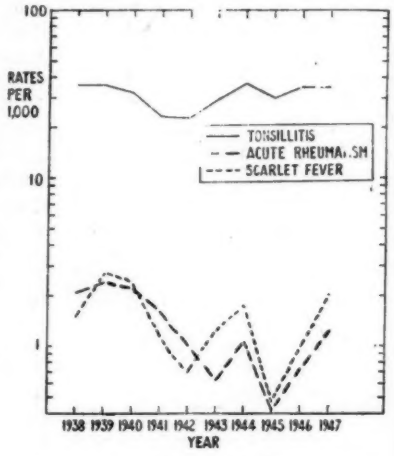


FIG. 1.—Incidence of tonsillitis, scarlet fever, and acute rheumatism in the R.A.F. Log. scale.

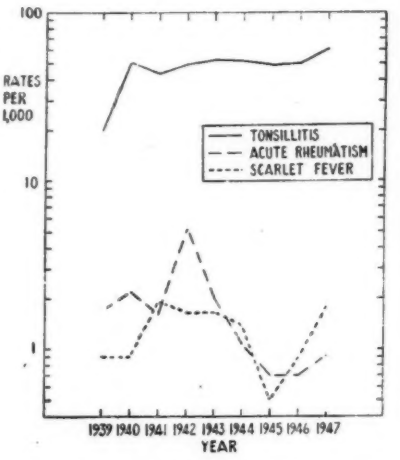


FIG. 2.—Incidence of tonsillitis, scarlet fever, and acute rheumatism in the W.A.A.F. Log. scale.

TABLE I.—*Incidence of Tonsillitis, Scarlet Fever, and Acute Rheumatism in the R.A.F. and W.A.A.F. at Home*

Disease	Year	R.A.F.				W.A.A.F.			
		No. of Cases	No. of Deaths	Incidence per 1,000 p.a.	Average No. of Days Treatment	No. of Cases	No. of Deaths	Incidence per 1,000 p.a.	Average No. of Days Treatment
Tonsillitis	1938	2,305	—	36·00	8	—	—	—	—
	1939	4,436	—	35·94	8	45	—	19·6	6
	1940	9,396	1	32·10	9	667	—	50·97	8
	1941	14,048	—	24·02	9	2,110	—	43·79	8
	1942	15,752	—	23·93	9	6,271	—	49·08	9
	1943	19,505	—	29·44	8	9,403	—	52·62	9
	1944	25,131	1	36·75	8	8,980	—	51·88	9
	1945	19,230	—	30·08	8	6,670	—	48·65	9
	1946	12,012	1	35·19	9	2,537	—	50·31	9
	1947	8,715		35·24	9	1,401		61·23	9
Scarlet fever	1938	99	—	1·5	36	—	—	—	—
	1939	329	—	2·7	36	2	—	0·9	28
	1940	699	—	2·4	32	12	—	0·9	27
	1941	647	—	1·1	30	91	—	1·9	29
	1942	455	—	0·69	29	209	1	1·64	29
	1943	815	1	1·23	26	297	—	1·66	30
	1944	1,180	—	1·73	22	240	—	1·39	26
	1945	301	1	0·47	30	70	—	0·51	22
	1946	336	—	0·98	27	45	—	0·89	27
	1947	496	—	2·01	26	42	—	1·84	26
Acute rheumatism	1938	132	—	2·1	76	—	—	—	—
	1939	300	—	2·4	48	4	—	1·7	23
	1940	630	1	2·2	33	29	—	2·2	23
	1941	952	—	1·6	31	75	—	1·6	30
	1942	649	1	0·99	26	666	—	5·21	24
	1943	413	—	0·62	38	357	1	2·00	25
	1944	724	—	1·06	52	186	—	1·07	36
	1945	268	—	0·42	34	100	—	0·70	43
	1946	251	—	0·74	51	38	1	0·70	40
	1947	299	—	1·21	56	21	—	0·92	44

TABLE II.—*Coefficients of Correlation Between Acute Rheumatism and Scarlet Fever and Tonsillitis*

	R.A.F.	W.A.A.F.
Acute rheumatism and scarlet fever ..	+0·83	+0·45
Acute rheumatism and tonsillitis ..	+0·28	−0·14

is particularly so in the R.A.F. The W.A.A.F. statistics are less reliable, as the Force was expanded quicker and had always a higher rate of influx and egress. It will be seen that these rates not only are highly correlated but are of the same order of magnitude.

If the statistics are accepted as valid they must have some practical interest. I feel that too much emphasis in the past has been placed on the value in epidemic prediction of the known relationship of streptococcal tonsillitis with acute rheumatism. This is, of course, the result of laboratory influence. The point must also be made that scarlet fever is notifiable and the other two diseases are not.

In brief we can say : (*a*) Tonsillitis figures are of very little use on a national basis as a warning of an imminent rise in acute rheumatism morbidity. In any case they are not available for the civil population. (*b*) Scarlet fever figures are available, and it would appear that in the adult (but not aged) population there can be expected about the same number of acute rheumatism cases as there are of scarlet fever. (*c*) A rising national scarlet-fever rate should be a signal for medical officers of health to look for the haemolytic streptococcus in epidemics of sore throats, however small these epidemics may be. (*d*) The R.A.F. and similar statistics might be of use to public health authorities, as they include non-notifiable diseases.

I am indebted to the Director-General Medical Services, Royal Air Force, for permission to publish.

REFERENCES

Air Ministry (1938–45). Statistics on the Health of the Royal Air Force and Women's Auxiliary Air Force. (Air Publication 875.) London.
Atwater, R. M. (1927). *Amer. J. Hyg.*, **7**, 343.
Galabin, A. L. (1902). *Lancet*, **1**, 1671.
Glover, J. A. (1942). Rheumatic Fever; in *Lancet*, Control of Common Fevers. London.
Hadfield, G., and Garrod, L. P. (1947). *Recent Advances in Pathology*. London.
Longstaff, G. B. (1904–5). *Trans. epidem. Soc. Lond.*, **24**, 33.

A report in the *New York Times* of testimony given before the Joint Congressional Committee on Atomic Energy describes the United States' preparations for a national blood transfusion service to be used in the event of atomic attack. It has been recommended that a peacetime blood donor system should be set up that would be ready if necessary to meet extraordinary wartime requirements. Dr. Norvin C. Kiefer, from the Office of Civilian Mobilization, estimated that "several million" pints of blood might be needed within the first few weeks of an atomic attack. He said that a huge reserve of standard bottles and other supplies must be ready to obtain blood in large quantities from persons outside the attacked area. It was possible to devise on paper an organization which could recruit millions of blood donors within a period of a few days, but the technical problems would be enormous and without actual experience of a comparable peacetime service the task would be almost impossible. Such a service would answer a peacetime need and offer a strong foundation on which an expanded wartime programme could be built with relative ease, safety, and speed. "Standardization of equipment is imperative," added Dr. Kiefer, "and in addition great efforts must be made to extend the period in which whole blood can be preserved, and to develop more effective blood substitutes." Conferences among the interested agencies are going on to this end.

Medical Memoranda

Cranial Arteritis Presenting as Meningitis

[WITH SPECIAL PLATE]

Temporal or cranial arteritis was first described by Jonathan Hutchinson in 1890. In 1932 Horton and Magath, in America, rediscovered the condition and described two cases, and in 1938 Jennings submitted the first report of two cases in England. Since then many cases have been described, and Harrison (1948) collected and summarized the outstanding features of 75 cases.

The condition has been reviewed and its relationship with periarteritis nodosa discussed by Miller (1949). He points out the widespread nature of the disease, which may affect intracranial vessels and larger arteries of the chest, trunk, and limbs.

Two features of interest in the case reported below were the marked signs of meningeal irritation and the successful therapeutic effect of infiltration of the affected areas with 2% procaine. This measure was suggested by Dantes (1946) and was successfully used in four cases by Roberts and Askey (1949).

CASE REPORT

A housewife aged 68 was admitted to West Middlesex Hospital on April 9, 1949. Her chief complaints were of headache and photophobia. She also complained of tender lumps on her face, forehead, and scalp, of long-standing malaise, and of recent feverishness and vomiting.

She had last been quite well nine months previously. During the winter she had noticed stiffness and pain in her knees and ankles, which massage and heat only aggravated. In April, 1949, she began to get headaches; these were shooting stabs of pain "from ear to ear," numbering 20 to 30 a day. Soon she began to get pain across her shoulders, made worse by changes in posture; pain appeared deep in the front of the thighs, and her calf muscles would ache badly on exercise. Generally off-colour and with poor appetite, she went to a convalescent home, where three weeks' rest brought much subjective improvement and lessening of pain. A few days after her return home the pains and general symptoms recurred. She noticed loss of weight and her increasingly pallid complexion.

Two weeks before admission, lumps appeared in her neck, just in front of both ears, and on the back of the head. They were extremely tender to touch and the overlying skin was reddened. Over the subsequent week her temperature rose to 101° F. (38.3° C.), and she began to get a constant throbbing headache, made worse by movements of the head or on bending down. She began to vomit four or five times a day, her jaws became stiff, and the headache invaded the back of her neck. She lay sick and miserable in bed with the curtains drawn, as "the light hurt her eyes."

On admission the patient was drowsy, flushed, and perspiring. She resented interference, and lay on her side with her head retracted and her eyes tightly closed. Her temperature was 99.2° F. (37.3° C.) and pulse rate 90.

On examination the most noteworthy feature was the presence of tender inflamed pulsatile lumps along the course of both superficial temporal arteries, involving the forehead and areas in front of and behind both ears. Moreover, the external carotid areas below the angles of the jaw were tender and inflamed, and there were numerous tender lumps in the scalp in the occipital and vertical regions. There was tenderness on palpation along the course of the common carotid and the right brachial arteries. Palpation of the abdominal aorta gave rise to pain, though this is often found in normal subjects. Neck rigidity was present and photophobia was marked,

FIG. A.—Swelling round temporal artery.

persisting a week after admission. The pupils of the eyes were constricted, but when they were dilated with homatropine the optic fundi and vessels were normal. There were no other abnormal signs in the central nervous system.

The only other abnormal physical findings were a persistent tachycardia, a white furred tongue, and a liver palpable two fingerbreadths below the right costal margin. The blood pressure was 128/68 mm. Hg.

Lumbar puncture was performed soon after admission and clear colourless fluid under a pressure of 160 mm. was obtained. This showed a raised protein content and excess of globulin. Unfortunately no cell count was carried out.

Investigations.—On August 11 a blood count showed: Hb, 85%; red cells, 4,130,000; M.C.H., 30 γγ; white cells, 9,700 (polymorphs 75%, lymphocytes 24%, monocytes 1%). A blood culture was negative. The cerebrospinal fluid was colourless and contained 76 mg. of protein and 690 mg. of chloride per 100 ml. Pandy's test was positive. The Wassermann and Kahn tests were negative. On September 1 a catheter specimen of urine contained a light amorphous precipitate, an occasional leucocyte and epithelial cell, and less than 10 mg. of protein per 100 ml.; it was sterile on culture. Cold agglutinins were not detected. On September 15 lumbar puncture revealed a colourless fluid, 87 mg. of protein and 690 mg. of chloride per 100 ml., and 4 leucocytes per c.mm. The erythrocyte sedimentation rate on August 15 was 52 mm. in the first hour and 90 mm. in the second; on August 22, 118 and 136 mm.; on August 29, 78 and 122 mm.; on September 5, 90 and 125 mm.; and on September 19, 100 and 125 mm.

The results of investigations showed no abnormality save a mild hypochromic anaemia and a persistently raised E.S.R.

On August 13 tissues around the temporal arteries from the angles of the jaw to the hairline were infiltrated with 2% procaine. Complete abolition of local pain and tenderness was achieved, but the headache, though less in intensity, persisted for a few more days. The arteries became less swollen and all signs of inflammation disappeared from the overlying skin. Three days later the left temporal artery again became swollen and tender. Local infiltration was repeated, with permanent results.

Biopsy was performed on August 31, and a segment of a branch of the occipital artery was excised. On microscopical investigation this showed typical histological features. The report states: "There is severe fibrosis of the media with giant cells of the Langhans type in the outer part of the media. The internal elastic lamina is fragmented and the lumen almost occluded by fibroblastic increase in the intima. The adventitia shows a lymphocytic infiltration."

The photograph (Fig. A) shows the patient's temporal area with swelling round the temporal arteries.

Photomicrographs show respectively a high-power view of the media, including many Langhans giant cells (Plate, Fig. 1) and a low-power view of the whole cross-section of the artery (Fig. 2).

My thanks are due to Dr. M. M. Deane and Dr. D. P. Degenhardt for permission to publish this case and for their helpful suggestions. I should also like to thank Dr. A. C. Counsell for his histological report, and Mr. Vinton, of the photographic department, for his work.

HARRY KEEN, M.B., B.S.

REFERENCES

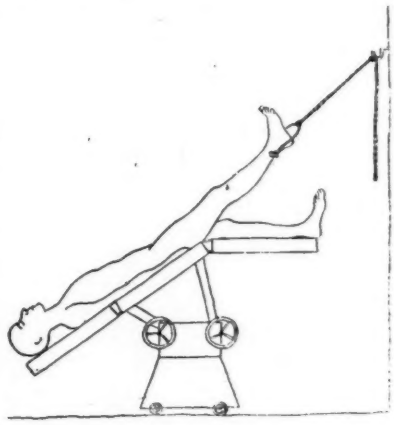
Dantes, D. A. (1946). *J. Amer. med. Ass.*, **131**, 1265.
Harrison, C. V. (1948). *J. clin. Path.*, **1**, 197.
Horton, B. T., and Magath, T. B. (1932). *Proc. Mayo Clin.*, **7**, 700.
Hutchinson, J. (1890). *Arch. Surg., Chicago*, **1**, 325.
Jennings, G. H. (1938). *Lancet*, **1**, 424.
Miller, H. G. (1949). *Proc. R. Soc. Med.*, **42**, 500.
Roberts, A. M., and Askey, J. M. (1949). *J. Amer. med. Ass.*, **137**, 697.

Reduction of Tibial Fractures

In the absence of specially designed distraction apparatus, unstable, oblique, or comminuted tibial fractures can be reduced without difficulty as follows.

METHOD

The anaesthetized patient is laid on a folded sheet on an adjustable operating table. A Steinmann's pin is introduced through the os calcis or the distal end of the tibia and fixed to a stirrup. Strong cord is made fast to the stirrup and to a hook or beam about 8 ft. (2.44 m.) above the floor and close to the end of the table so as to exert traction on the leg. The hinged footpiece of the table is lowered and the table tilted head downwards to about 40 degrees below the horizontal. The body weight of the patient thus provides strong traction, and to increase traction the table can be tilted further or lowered. Rubber-covered cushions or rubber sheeting under the patient prevent the sliding which develops traction, and therefore must not be used.



When reduction is satisfactory plaster is immediately applied from toes to thigh without moving the limb. A padded sling behind the knee can be used to give 10 degrees of flexion and thereby prevent rotation of the upper fragment. Lateral or antero-posterior compression can be applied while the plaster is setting.

COMMENT

This method does not require any special apparatus. It is easy to take radiographs after reduction and before applying the plaster. Since the knee is straight instead of being flexed to a right-angle as in some other methods, the whole plaster can be put on without moving the limb.

When no orthopaedic table was available fractures of the neck of the femur have been reduced by a similar method, and the reduction has been maintained during the prolonged insertion of Smith-Petersen nails.

So simple a manœuvre can hardly be new, but it is not described in the standard works on fractures, and its very simplicity makes it worth recording.

Miss Rosemary Grimble kindly drew the diagram.

AUBREY LEACOCK, M.Chir., F.R.C.S.,
Surgeon-Specialist, Barbados General Hospital

Dr. T. M. Montford, of Castle Donington, near Derby, has been unanimously re-elected vice-chairman of the Leicestershire and Rutland Executive Council for 1950–1. He also represents the West Midland Division on the Management Committee of the Association of Executive Councils (England).

Reviews

ALFRED COX

Among the Doctors. By Alfred Cox, O.B.E., LL.D. (Manitoba), Hon. M.A. (Durham), M.B., B.S. Formerly Medical Secretary of the B.M.A. (Pp. 224. 12s. 6d.) London: Christopher Johnson. 1950.

> This book will bring much pleasure, I should say,
> To many people, medical and lay;
> At least it should be read without delay
> By all the members of the B.M.A.

Let us begin at the end. The last paragraph in the book runs: "I have had a happy life, and, nearing the end of it, have much to be thankful for. I can say, as few men can, that I have done just the work I wanted to do; and through it have made a host of friends, amongst whom have been many of the very salt of the earth." This strikes the key-note of a refreshingly honest account of the life of one who for many years had a great and benevolent influence on the development of the British Medical Association.

Alfred Cox was born of working-class parents in Middlesbrough on May 5, 1866. He was a rather delicate child. He obtained a sound elementary education at a Darlington Board School, under the headship of a man who made a great impression on him. After a short time spent in teaching he studied for the Civil Service, but while working in an insurance office in Carlisle he was persuaded by a young doctor to become his unqualified dispenser and assistant. From this small beginning he worked his way to a medical degree and a fairly flourishing practice in Gateshead. The first 70 pages should be read carefully by every young doctor. They contain a first-hand account of medical practice of fifty years ago, and grounds are furnished for a judgment on the relative status of the doctor then and now.

From his early days in practice Cox worked for friendly co-operation between doctors, founded a local medical society, and became interested in the B.M.A. In 1908 he gave up practice to become deputy medical secretary of the Association, and in 1912 was appointed Medical Secretary. He filled this responsible post for twenty eventful years, finishing with the memorable centenary celebrations of the Association in 1932. After his (so-called) retirement, however, he found opportunity for his insatiable desire for work, of which this book is the latest evidence. It is a very readable book, for it gives an unvarnished account of the many important events in which the author took part. There are thumbnail sketches of many prominent medical men of the past sixty years, and well-deserved bouquets are handed to the successive editors of the *B.M.J.*, not least to the present editor. The pages are lit up by many amusing stories (some of them true) and by the author's practical philosophy. I liked the comment on chairmen: "Chairmanship at its best is a fine art; some men are born chairmen, some achieve greatness; some merely fill the chair." There are references to several non-medical celebrities also, and we read a graphic account of General Booth kneeling down in a railway carriage in order to pray for the success of the young Alfred Cox in his forthcoming medical examination.

In his early days Cox was a member of the I.L.P. and had Keir Hardie as his friend. Later his views changed, and he remarks, "The events of the past few years have undeceived me." This change of view has had one surprising result. Throughout the book there breathes a spirit of optimism, and in controversies both sides are well presented and a reasonable and objective view taken. In the last chapter, however, feeling seems to have prevailed; only one side of the question is given, and for a short time pessimism comes uppermost. Fortunately the book ends on a happy note. But let us finish at the beginning. In the first paragraph we find a quotation from Gray—"Any fool may write a most valuable book by chance if he will only tell us what he heard and saw with veracity." Delete "by chance" and substitute "a wise man" for "any fool" and the quotation would be appropriate for this book.

ZACHARY COPE.

MODERN SURGERY

Advances in Surgery. Volume 1. Edited by W. DeWitt Andrus and others. (Pp. 554; illustrated. £3 6s.) New York and London: Interscience Publishers Inc. 1949.

Interscience Publishers Inc., of New York, have issued the first volume of a series to be entitled *Advances in Surgery*. The responsibility of choosing the matter for these books is in the hands of an international editorial board of distinguished surgeons, a circumstance which determines that the papers are of international authorship. In the present volume, for instance, two of the seven articles are from this country—"The Regeneration of Nerves," by Professor J. Z. Young, and "The Immersion-foot Syndrome," by Dr. C. Ungley. In the preface it is explained by the chief editor, Dr. DeWitt Andrus, that, as progress in surgery to-day owes much to developments in other subjects, "these volumes will contain articles covering not only what may be called purely surgical subjects, but also developments in other fields which may contribute to surgical therapy."

Each article is written in great detail and forms a monograph on the particular subject running to an average of seventy pages. In volume one the subjects discussed, in addition to those mentioned above, are "Traumatic Shock" (Fine), "Stricture of the Common Bile Duct" (Cole, Reynolds, and Ireneus), "The Use of Antibiotics in Surgery" (Rhoades and Zintel), "Blood Vessel Anastomosis" (Blakemore and Lord), and "Tumours of Bone" (Coley and Higinbotham). As will be seen, each article is by recognized experts.

The quality of all the papers is good, and the extensive bibliographies (including an index of authors referred to) will prove most useful to those specializing in these branches of surgery. Illustrations are copious and well reproduced. If the level of the articles in this volume can be maintained there is no doubt that these publications will come to be recognized as important contributions to surgical literature.

NORMAN C. LAKE.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

Gangrel Verses. By W. Barr. (Pp. 72. 7s. 6d.) Glasgow: William Maclellan. 1949.

Emergency Surgery. Part 3. By H. Bailey, F.R.C.S., F.R.S.E., and N. M. Matheson, M.R.C.P., F.R.C.S. 6th ed. (Pp. 168. 21s.) Bristol: John Wright. 1950.

In Praise of Nurses. By John Masefield. (Price 1s.) London: Heinemann. 1950.

The Ordinary Devoted Mother and Her Baby. By D. W. Winnicott. (Pp. 47. 1s. 2d. post free.) London: "Pamphlet." 1950.

Office Orthopedics. By L. Cozen, M.D., F.A.C.S. (Pp. 232. 35s.) London: Henry Kimpton. 1950.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY APRIL 29 1950

CARCINOMA OF THE STOMACH

Ninety-five per cent of cancers of the stomach occur in patients over 45 years of age, and in four out of five of these patients the dyspeptic symptoms are the first they have ever suffered. Since more than fourteen thousand people die each year in England and Wales of this disease there is the strongest possible argument for the invariable and immediate investigation of all cases of dyspepsia occurring after the age of 45. The busy and harassed general practitioner often remarks that he is faced with so many patients who complain of indigestion that it would be impracticable for him to refer every such case for investigation. This may be an argument of doubtful validity, though in present conditions it is nearly impossible for a practitioner to arrange for a patient to have a barium-meal examination without referring him or her to a consultant, for very few hospitals will permit direct reference to their *x*-ray departments. A doctor may therefore hesitate to refer a patient for further opinion until he has tried the effects of diet and alkalis ; and when, as so often happens, there is some temporary remission of symptoms both he and his patient may be lulled into a sense of false security. It would probably be difficult for most hospitals to allow any sudden extension of a practice which is at present permitted in so few institutions, but surely there is great need for imaginative development of an improved *x*-ray service for the family doctor. In the distant future, when the promised health centres materialize, there would seem to be a strong argument for providing the services of a radiologist, possibly for one or two sessions each week, to undertake barium-meal examinations for the general practitioner. The possible abuses of such a service would be far outweighed by the advantages for both practitioner and patient.

The general practitioner is probably in the strongest position to ensure the prompt investigation of all suspicious cases, but he is by no means the most important cause of delays in diagnosis. About a third of all cases are immediately referred to hospital by the practitioner, but in an equal proportion there is a delay of three months or more before any special investigations are done. Delays longer than six months more often occur in those cases with mid-gastric growths in which the symptoms are vague and the onset is insidious. A still more important cause of delay in diagnosis is the interval which elapses between the onset of symptoms and the time when the patient reports to his doctor. It has seemed to some that the only way of reducing this time lag is by vigorous education of the public. Others have advocated regular routine physical examinations and even routine *x*-ray examination for those over the age of 45. Routine physical and radiographic examinations in symptom-free individuals are unlikely to yield results commensurate with the effort entailed, and even intensive publicity will probably not have a great effect in inducing sufferers to report sooner to their doctors. The efforts of some insurance companies in the U.S.A. have not met with much success in this connexion, and even more eloquent evidence is afforded by Alvarez,[1] who has shown that the average delay in seeking advice is as great among medical-practitioner sufferers as among laymen —the interval being between six and ten months in each group.

That early diagnosis is the key to this problem is clearly demonstrated by the pathological findings in cancer of the stomach. Naked-eye and histological studies of these growths do not support the belief that this is generally a neoplasm with peculiarly malignant properties ; such extensions of the growth as have already occurred at operation are due to the delayed diagnosis rather than to rapid growth. According to Harnett's[2] survey, which was published in 1947, rather more than half of all carcinomas of the stomach occur in the pyloric region, and prior to 1939 about a third of these were resected, with a 25% operation mortality and a five-year survival rate of 20% among those discharged from hospital. This means that of every 100 such patients admitted to hospital 35 will be submitted to radical operation, 9 will die in the early post-operative period, and only 5 will survive for five years. Since pyloric growths are among the most favourable encountered by the surgeon, this does not make cheerful reading. These results are, however, more truly a reflection on standards of diagnosis than upon standards of surgery, for it has been shown in cases of pyloric carcinoma without lymphatic-gland involvement that the expectation of 5-year survival is 60% of that in a comparable group in the general population. These figures represent the efforts of many surgeons in numerous hospitals and not the work of a highly skilled few working under ideal conditions. Although the ultimate survival rate for mid-gastric growths is of the same order, the operative mortality is higher.

Neoplasms of the cardiac end of the stomach, or mid-gastric growths extending into this region, present a different problem. They comprise at least 25% of all malignant growths of the stomach, and in the year

[1] *J. Amer. med. Ass.*, 1931, **97**, 77.
[2] *Brit. J. Surg.*, 1947, **34**, 379.

preceding the last war some 10% were submitted to radical resection, with a 90% mortality rate. There is some justification for expecting better results in the future. The great advances in anaesthetic, resuscitation, and operative technique now permit the performance of thoraco-abdominal operations with a mortality lower than that previously experienced for the frequently inadequate abdominal procedures. Nevertheless the mortality of these operations, varying between 10% and 70%, still tends to be too high. While extensive procedures may often be necessary for growths of the cardia, it is less easy to justify them for those near the pylorus. To make a thoraco-abdominal approach with a "block" dissection which includes the whole stomach, the spleen, and a major part of the pancreas a routine operation for all gastric growths is unduly severe and probably often unnecessary for neoplasms in the distal part of the stomach. In the present state of knowledge, those performing such operations should not fail to submit their specimens to the most detailed pathological examination. If, in the case of growths in the distal part of the stomach, the clearance of involved glands proves little more adequate than that effected by the less severe subtotal gastrectomy, then it is doubtful whether such radical operations should be countenanced for pyloric tumours. When enough specimens have been submitted to such careful and detailed examination as has been practised by Dr. Cuthbert Dukes in the case of rectal carcinoma, then surgeons may be able to base their procedure on sound pathological foundations. Those who are privileged to deal with large numbers of these cases have important responsibilities. There is no place for the competitive spirit in the performance of long and complicated operations, and in fact the major centres might well consider pooling their knowledge and resources and at least submitting their operation specimens to a single laboratory where more detailed and uniform pathological investigation could be carried out.

In the opening pages of this issue Mr. H. C. Edwards, while admitting the validity of the available statistics, enters a plea for a more hopeful attitude towards the problem of carcinoma of the stomach. An optimistic outlook is certainly an essential antidote to the gloom of statistics, but so long as those experiencing significant symptoms fail to recognize, or fear to admit, the implications of their trouble there is little hope of bringing the patient sooner to the surgeon. If doctors themselves suffering from cancer of the stomach are no quicker than their patients in seeking advice and investigation it can fairly confidently be predicted that mass education alone will not solve this problem. Most will agree with Mr. Edwards that our efforts are better directed to eradicating the later delays in diagnosis and in rendering the surgeon's attack more effective.

A NEW INQUIRY

The long negotiations on behalf of general practitioners undertaken by their representatives with the Government are briefly described in the *Supplement* this week. The General Medical Services Committee records its "deep disappointment at the Minister's repeated refusals to increase general-practitioner remuneration," and accedes to his request for further inquiries only on certain conditions. One inquiry is to be made of executive councils to discover how much was paid to each general practitioner in the year ended March 31, 1950. The earlier inquiry was found to contain so many fallacies as to be useless. The second inquiry is into practice expenses, which incidentally will have risen since the Chancellor of the Exchequer put 9d. on the price of a gallon of petrol in the Budget. This inquiry will be made, through the Inland Revenue authorities, by means of a random sample and will be anonymous.

Conscious of having had to contend with delay and evasion in the past, the G.M.S. Committee has decided to co-operate only if the inquiries are completed without delay. The Minister is apparently not unsympathetic with the general practitioners' case. He knows as well as the profession that many young men who would make excellent general practitioners are doing their utmost to keep out of that branch of medicine. Their reluctance to enter what was once an attractive way of life—and must again be, if medical standards are to be maintained in this country—springs not only from the higher financial rewards open to consultants but also from the loss of prestige that general practice has suffered. Many correspondents have drawn attention to the fall in the esteem in which some patients now hold their family doctor, and the Government has contributed to this by failing to pay him in accordance with the work and responsibility that he bears—indeed, by paying him much less than people whose hours of work and responsibility are slight in comparison. But the Government's "wage-freeze" policy persists, and Sir Stafford Cripps said in the Budget Debate that it is not possible in existing circumstances to permit any overall increase in the expenditure on the health services. If more money is to be found for general practitioners it must be saved elsewhere in the Health Service, and the Chancellor has agreed that money saved in the Health Service can be redistributed and need not necessarily be returned to the Treasury. The G.M.S. Committee is rightly pressing the Minister that it should be redistributed, if the investigations reveal "inadequacy of general-practitioner remuneration or an excessive margin between their remuneration and that of other comparable professions

within the National Health Service and other appropriate branches of the medical profession."

The second condition on which the Committee is willing to co-operate with the Minister is that the Spens Report must remain the basis of general-practitioner remuneration "until, after appropriate notice, any new basis is agreed between the Minister and the profession's representatives." The Minister and his officials have recently shown an inclination to get away from Spens. They apparently regard the report as the basis on which remuneration was fixed in the initial stages of the Health Service, thereafter to be abandoned as the Health Service changes. On this interpretation remuneration has been fixed at a certain level in accordance with the population and further negotiations are needed to change it. Yet if they lead to nothing—or perhaps to further inquiries—an expanding profession will continue to be paid at a fixed rate. Clearly the Central Pool must be increased to take account of new doctors. But by how much is it to be increased if not to provide those levels recommended by the Spens Committee?

The Ministry seems to think that if there are more general practitioners than there are now they will do less work, and therefore do not deserve the present pay for it. The quality is not considered, yet it would surely improve, for doctors would have the opportunity, which many of them now lament the lack of, to keep abreast of the literature and to relax. The Government apparently attaches no importance to these necessary adjuncts of professional life, though it recognizes the value to industrial production of adequate leisure for factory workers. Both Government and profession have accepted the Spens recommendations; one party cannot throw them aside without the consent of the other. The G.M.S. Committee is willing to help in obtaining further information, but delay can be justified only if the safeguards referred to are agreed by the Ministry.

THE ADRENAL CORTEX AND RHEUMATIC DISEASE

Since the report last year by Hench, Kendall, Slocumb, and Polley[1] on the treatment of rheumatoid arthritis with cortisone there has been no definite news of the progress of this research, and Boland's[2] review in the current issue of the *Annals of the Rheumatic Diseases* will therefore be read with great interest. Boland worked with Hench in the U.S. Services Rheumatism Centre during the war, and was one of the chief officers at the Congress of the Rheumatic Diseases in New York last year.[3] He has himself reported a small series of cases,[4] but the main part of this review is a discussion on the relation of the adrenal cortex to rheumatic disease and an account of the results of other investigators. Boland notes the gradual turning of Hench from the microbic theory after his research into the effects of jaundice and pregnancy on rheumatoid arthritis to the conjecture that an adrenocortical hormone might be implicated and thus to the trial of cortisone (compound E). Many important facts were known about the physiological action of this substance before its clinical trial, for in 1936 Kendall and his co-workers[5] had already isolated nine separate, but closely related, steroid hormones from extracts of the adrenal cortex. Selye[6] has included the rheumatic diseases among the diseases of adaptation, and Boland discusses the reasoning leading to this conception—with the apparent opposing effects of mineralo-corticoid and glyco-corticoid hormones, as Bishop[7] has suggested in this country.

Up to the end of 1949 it is estimated that in the U.S.A. cortisone has been studied in about 160 patients and A.C.T.H. in about 175 patients with rheumatoid arthritis. The work of the Mayo Clinic investigators has been confirmed by several critical investigators.[8] There is a definite pattern of improvement after the administration of cortisone, starting with a marked reduction of pain and stiffness within a few days and often with a feeling of well-being and loss of "toxicity." This is followed by a reduction of swelling and increase of movement and even by the correction of mild flexion deformities. At the same time the sedimentation rate falls, the anaemia improves, and the abnormal albumin-globulin ratio is reversed. Similar results have been obtained with A.C.T.H. Holbrook[9] has reported that after treatment for 10 to 20 days several of his patients retained 75% of the initial improvement for longer than six months. Much work has been done on the metabolic effects of cortisone and A.C.T.H. Electrolyte balance is not greatly upset. It is interesting that 30%–50% of the increased corticosteroid output consisted of compound F (17-hydroxycorticosterone), for this has been considered to be as potent a weapon as compound E but is most difficult to study because of its instability.

There is not yet agreement on the correct dosage of these substances, though it seems a high initial dose is essential. In milder cases, and even sometimes in more severe ones, the dose may be lowered after improvement becomes apparent. Sustained improvement, with few exceptions, still appears to be dependent on continued administration. Boland agrees with Savage[10] that the

[1] *Proc. Mayo Clin.*, 1949, **24**, 181. See also leading article in the *British Medical Journal*, 1949, **1**, 812.
[2] *Ann. rheum. Dis.*, 1950, **9**, 1.
[3] Reported in the *British Medical Journal*, 1949, **2**, 154.
[4] Boland, E. W., and Headley, N. E., *J. Amer. med. Ass.*, 1949, **141**, 301.
[5] *J. biol. Chem.*, 1936, **114**, lvii–lviii (in *Soc. Proc.*).
[6] *British Medical Journal*, 1949, **2**, 1129. See also leading article on p. 1159.
[7] Annual Report (1949) of the West London Hospital Department of Rheumatic Diseases, p. 7.
[8] Bauer, W., Boland, E. W., Freyberg, R. H., Holbrook, W. P., and Rosenberg, E. F. Discussions, Proceedings Seventh International Congress on Rheumatic Diseases, 1949. (In the press.)
[9] Personal communication to Boland, E. W.
[10] Annual Report (1949) of the West London Hospital Department of Rheumatic Diseases, p. 14.
[11] *Bull. N.Y. Acad. Med.* (In the press.)

side-effects of cortisone and A.C.T.H. have been over-emphasized in rheumatoid arthritis, and he suggests that when they have occurred after the administration of large doses for extended periods in some patients with rheumatoid arthritis, and have disappeared when the treatment was stopped, they should be referred to as "hyperadrenalism" rather than as toxic effects. Freyberg[11] has encountered no serious complications in a series of 17 cases treated with cortisone, some for as long as 160 days. There can be no doubt that cortisone and A.C.T.H. bring about profound clinical and metabolic changes, and possibly intermittent periods of therapy after the initial response may be the best programme of treatment. In diseases of adaptation, when the suprarenal cortex has become exhausted and can be treated either by replacement (cortisone) or by stimulation (A.C.T.H.), it may be necessary to wean the gland from the necessity of either once the patient has been relieved of symptoms. Boland also refers to the reports of the successful treatment with cortisone or A.C.T.H. of Still's disease, ankylosing spondylitis, psoriatic arthritis, rheumatic fever, periarteritis nodosa, disseminated lupus, and dermatomyositis. In this country supplies of cortisone and A.C.T.H. have been too small to permit clinical research into the many problems of their administration, but Mr. Herbert Morrison has recently stated in Parliament that amounts of cortisone are now being received which will allow tests to be made on a small group of specially selected patients.

STUDENT HEALTH AND WELFARE

About two years ago we referred to the arrangements being made at some universities for the supervision of student health.[1] Since then interest in this branch of preventive medicine has grown, and at the present time only four of the 16 British universities outside London have made no appointment of a whole-time physician to care for student health. Nor has this extension of interest been limited to Great Britain. Replies to a recent questionary issued by the International Association of University Professors and Lecturers to 58 universities in 25 countries, excluding Great Britain and the U.S.A., have shown that in 53 universities where some kind of health service operates all but three include radiographic examination of the lungs, and at more than two-thirds of them there is in addition a general physical examination at entry.[2] In the United States the American Student Health Association was formed nearly 30 years ago, and the number of member institutions is now approaching 200.[3]

Quite rightly student-health physicians in this country have inspected lodging conditions and arrangements for feeding. Wide local variation occurs, but overcrowding has necessitated the sharing not only of workrooms but also of bedrooms and, in exceptional circumstances, even of beds. At Edinburgh University a special study of the nutrition of students was recently undertaken.[4] While no student was found who as a rule went to bed hungry, not a few students said that their midday meals were insufficient. Refectories can do much to solve the student's difficulty of obtaining a satisfactory midday meal, but only if they are well run. It is encouraging to read that the majority of landladies in Edinburgh looked after their student lodgers well. Even at university level there is a real need for elementary health education to help students to avoid an ill-balanced diet. The same need for elementary health education is stressed by Hitchens and Grant in a report on student welfare in the University of Wales.[5] These authors found 24 cases of pulmonary tuberculosis (active, healed, or requiring observation) out of a total of 3,240 students examined by mass miniature radiography. A prevalence of 7.4 per 1,000 is lower than has been found elsewhere among students. The number of active cases in this group might have been expected to be nearer ten than the two which were discovered, especially as the percentage of Mantoux-negative students was no higher than elsewhere. One reason for this low prevalence may be that only 65% of students volunteered for chest *x*-ray examination. Fear of the results of examination may deter individuals from volunteering, and may be commoner among those with a family history or knowledge of contact. It is evident that until all students are examined radiographically at least annually the value of this particular preventive method cannot be fully exploited. Hitchens and Grant have devised a new record form which will make it possible to handle the large amount of sociological and other data more easily by mechanical methods of sorting. Since a large number of headings are similar to those on the record forms in use at eight other British universities, comparative studies will be feasible.

The first report on the working of the student health service at Cambridge has recently been published.[6] This is a preventive service (consisting of a clinical and an *x*-ray examination) offered to students entering the University. Sir Alan Rook, the author of the report, states that the value of the clinical examination is not as obvious as that of mass radiography, but it does help to allay unnecessary anxiety and prevent useless self-medication. Here again the need for elementary health education is demonstrated. Each student at Cambridge was asked five questions about his general health, and the chief complaint was of sleeplessness. There is a marked rise in this ailment just before and during examination time. Some of the undergraduates complained that they did not get enough to eat. Sir Alan Rook refers to the difficulty of arranging treatment when some disability is found, for though in theory every student is on a doctor's list about 50% of the undergraduates were on the list of their home doctor, while another 10% were not on any list. "The Cambridge undergraduate is poorly off when compared with some London and provincial students, who can be sent without delay to the appropriate department of a hospital for consultation and, if necessary, admitted to special beds for

[1] *British Medical Journal*, 1948, **1**, 504.
[2] Preliminary report by the Secretary-General at the I.A.U.P.L. Conference at Basle, 1949.
[3] Proceedings of the 24th annual meeting of the American Student Health Association, 1946, Minneapolis.
[4] Kitchin, A. H., Passmore, R., Pyke, M., and Warnock, G. M., *Brit. J. soc. Med.*, 1949, **3**, 10.
[5] Annual Report to the Council of the University of Wales on Student Welfare, 1949.
[6] *Cambridge University Reporter*, 1950, **80**, 707.

observation or treatment." An interesting result of the statistical analysis of the findings of the student health officers at Cambridge was that freshmen are on the average about 3 lb. (1.3 kg.) heavier for their age and height than the standard of reference adopted.

MICROWAVE DIATHERMY

Radiations of a wavelength of approximately 12 cm. and of a frequency of 2,450 megacycles can be reflected, refracted, and diffracted. The therapeutic possibilities of these microwaves, the main use for which has been in the field of radar detection, has recently been discussed by Wakim and his colleagues in the U.S.A. Using a portable emitter with an air-cooled magnetron and a single director, not in contact with the skin, they conducted experiments on the effect of microwaves on blood flow and temperature in both animals and human volunteers. They had previously shown in collaboration with Leden that microwaves could undoubtedly heat tissues,[2] and in further animal experiments they were able to demonstrate that the heat thus produced in the thigh increased the blood flow in the femoral vein by 109%. They also found that in tissue rendered ischaemic or oedematous serious damage could be done with temperatures which had proved harmless in normally vascular structures. Similarly it appeared that bony prominences and local accumulations of fluid such as blisters were also danger points at which overheating could occur. In human volunteers they found that both temperature and blood flow could be increased by microwaves applied for from 5 to 30 minutes with outputs of 60 and 80 watts. Up to 15 minutes of heating caused a similar increase of blood flow with an output both of 60 and of 80 watts, but any increase in time of exposure led to a greater blood flow with an 80-watt output. The temperature gradually rose during a 15-minute exposure, remained steady for a further 5 minutes, and then began to fall. A small series of patients suffering from conditions for which heat is usually prescribed were treated with microwave diathermy, and though results were favourable the authors concluded that clinical application of microwaves was still limited and that more careful investigations were needed.

In view of this report from the U.S.A. it is not surprising that there was no great demand for the clinical application of microwave diathermy in this country: it was generally agreed that it had no advantage over conventional short-wave diathermy. Recently Boyle, Cook, and Buchanan[3] have published an account of a preliminary investigation into the effects of microwave diathermy in this country. They used a typical radar set emitting 10-cm. waves with an output up to 100 watts, and a contact applicator giving pulsed radiations. Like the American workers they found that any fluid such as sweat caused a local increase in heat, but that with the use of the contact applicator more heat was produced at the centre of the field than at the periphery. This was a reversal of the American finding that with a non-contact applicator the greater heat was produced at the periphery of the field. The most important finding of the English workers was that the heating effect of microwaves is confined to the first few centimetres below the skin. Thus this form of heating is more penetrating than infra-red rays but much less penetrating than short-wave diathermy. They conclude, therefore, that microwaves will not replace the use of short-wave diathermy in heating large or deep areas but may be valuable in more superficial disorders. Both these papers would suggest that the therapeutic application of microwaves has not yet advanced from the experimental to the clinical level.

[1] *J. Amer. med Ass.*, 1949, **139**, 989.
[2] *Brit. J. phys. Med.*, 1947, **10**, 177.
[3] Ibid., 1950, **1**, 2.

EXPERIMENTAL Q FEVER IN MAN

Portugal is among the many countries in which Q fever has now been demonstrated, and here considerable light has been thrown on the disease in man by the experimental infection of human volunteers with locally isolated strains of *Rickettsia burneti*.[1] No fewer than 51 volunteers took part, but of 11 who were given infected food only two subsequently developed complement-fixing antibodies, and it is therefore believed that Q fever cannot readily be caught by eating infected material except when the strain is a very virulent one. Of 29 persons infected intradermally all developed signs of the disease. The interval before the appearance of complement-fixing antibodies in the blood varied according to the strain and the number of rickettsiae injected: it was never less than eight days, and in most cases complement-fixing antibodies were only just beginning to appear 12 days after infection. Intradermal injections caused local papule formation with a spreading inflammatory halo and adenitis: the lymph nodes became painful and the temperature rose after a varying incubation period. After inoculation of a large number of rickettsiae the symptoms usually appeared after about 48 hours. In patients who are already immune intradermal inoculation of active rickettsiae causes a small papule with slight enlargement of the regional lymph nodes, the symptoms disappearing rapidly. Intranasal inoculation was carried out in ten volunteers: in only two, after inoculation with a virulent strain, did immune bodies appear and then only after an interval of from 23 to 29 days.

These experiments clearly show that *R. burneti* can infect man by a number of routes, the clinical symptoms varying with the strain and the actual number of rickettsiae injected. Sometimes immune bodies appear in the absence of clinical symptoms. A further point of interest is that complement-fixing antibodies may be present in the blood stream, disappear after a few days, and then reappear: a single examination for complement-fixing antibodies in the serum may thus fail to demonstrate their presence. Fatal infections with Q fever are uncommon, and elsewhere in this issue Dr. J. W. Whittick describes the seventh known fatal case. In five instances necropsies have been performed, and in all a diffuse pneumonia with a mononuclear exudate was observed. Whittick's patient was an elderly man of 78, and lesions were observed in the brain and right testicle. The changes in the brain were comparatively early, a point of some interest, since Wegmann,[2] who observed encephalitis in one case, found that cerebral symptoms developed only as the patient was recovering from the Q-fever pneumonia.

[1] Fonseca, F., Pinto, M. R., Oliviera, J., Marques da Gama, M., and Lacerda, M. T., *Clin. contemp.*, 1949, **3**, 1567.
[2] *Schweiz. med. Wschr.*, 1949, **79**, 690.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

HYPERTENSION—II

BY

ROBERT PLATT, M.D., M.Sc., F.R.C.P.

Professor of Medicine, University of Manchester

Prognosis and Assessment of Hypertensive Cases

It is most important to bear in mind the fact that benign essential hypertension is a condition compatible with many years of useful life. If a moderate rise in blood pressure is accidentally discovered at the age of 35, for instance, it is quite possible that the patient may be over 60 before he begins to develop symptoms of cardiac strain, and the greatest disservice will have been done to him if, because of a foolish doctor, he spends those 25 or 30 years in a state of anxiety about his health. Burgess (1948) has shown that even severe degrees of hypertension—for example, a diastolic pressure of 120—especially in women, may be compatible with a normal life span. Patients have been known to live for more than 15 years after a blood pressure of this severity has been discovered. Nevertheless, the prognosis depends to a considerable extent upon the height of the diastolic pressure.

Although statistically the chances of living to a good old age are reduced if the diastolic pressure in middle life is 100 or more, the hypertensive patient is not usually in any danger until his diastolic pressure reaches 120 or over. Even then the greatest care must be taken to ensure that the patient is not nervous or excited at the time of the examination, and is not showing tachycardia. In many persons who show an initial diastolic blood-pressure reading of 120 the resting level is far less and the prognosis relatively good. The age and sex of the patient will, of course, be considered, for every observer has noted that women withstand all types of hypertension better than men. Further assessment of the severity of the case is made by a consideration of the heart, the brain, the retina, and the kidney. This is done partly by an inquiry into symptoms and partly by examination of the patient.

Examination of the cardiovascular system may reveal pulsus alternans or gallop rhythm, and there may be a history of anginal pain or dyspnoea on exertion. Minor cerebral disturbances such as transient aphasia, paraesthesia, or monoplegia may precede a stroke. It is not necessary to make accurate tests of renal function if the case is clearly one of benign hypertension and there is no albuminuria. Because of the likelihood of a renal cause of hypertension in younger subjects, the discovery of a severe hypertension in a person under 45 should lead to a more thorough investigation, preferably in hospital.

Renal Hypertension

Whereas essential hypertension is not usually discovered until after the age of 40, renal hypertension may occur in quite young people and even in children. The hypertension is usually severe, often malignant in type, and the prognosis is bad. The most important causes are chronic nephritis and pyelonephritis, but some cases are due to congenital abnormalities of the kidney, to periarteritis nodosa, and to renal tuberculosis. Women who have suffered from one or more episodes of pregnancy toxaemia may develop severe and permanent hypertension.

Renal hypertension is suspected by the age of the patient, the usual absence of a family history of hypertensive disease, and by a personal history of acute nephritis, or of attacks of cystitis, or other evidence of urinary infection. It is to be suspected also if the renal function has diminished out of proportion to the severity of the hypertension and if albuminuria is known to have preceded the onset of symptoms. Albuminuria is not invariable, however, and is often absent in the post-pregnancy and the pyelonephritic cases. Hypertension is frequently the result of a pyelonephritis which is no longer active, and a negative culture of the urine does not rule out urinary infection as a cause of high blood pressure.

All cases of severe hypertension in which a renal cause is suspected should undergo a careful investigation, including some tests of renal function, such as the urea-clearance test, and an intravenous pyelogram. The latter should not, however, be taken if the urea clearance is below 30% of the average normal. The chief importance of this investigation is to disclose rare cases in which the hypertension is due to unilateral renal disease. Any case in which sympathectomy is contemplated should undergo a similar investigation, which should also include an assessment of the cardiac condition by radiograph and electrocardiogram. In persons over 50 in whom a renal origin of hypertension is not suspected there is, in my opinion, nothing to be gained by submitting the patient to a series of tedious and expensive investigations.

Treatment

When symptomless hypertension is discovered by chance during the course of an examination for another reason, and the diastolic pressure is no more than 100 in a young subject, or 110 in an older person, the patient should not be informed of the discovery. No patient should ever be told the height of his blood pressure. These rules are even more important if the patient happens to be a doctor. On no account should menopausal flushings be ascribed to blood pressure. Most of the minor symptoms ascribed to hypertension, such as headache, bursting sensations in the head, and dizziness, are, in fact, commonly due to a superimposed anxiety state and are to be treated by reassurance and an atmosphere of confidence.

When more serious cardiac or cerebral symptoms have occurred, or when a very high blood pressure with a diastolic level of 120 or more has been discovered, which is not lowered by rest and reassurance, a more or less strict regime may have to be imposed, varying from reduced activity to complete rest. When cardiac breakdown is threatened or present, the treatment is the same as that for any other heart disease of equal severity. Diet has no place in the treatment of hypertension, except possibly in renal or malignant cases with uraemia and in hypertensives who are grossly overweight. The latter should be given a strict weight-reducing diet containing as much protein as possible and practically no fat. There is no contraindication to giving dextro-amphetamine in such cases.

Hypertensive headache of moderate degree will usually respond to the ordinary analgesic drugs. A few cases seem to react favourably to ergotamine. Severe paroxysmal headache, especially in malignant hypertension, may be

very difficult to relieve. The removal of a small amount of cerebrospinal fluid may cause temporary improvement, and I have had some cases which seemed to improve considerably on dextro-amphetamine or even amphetamine combined with simple analgesics. Sympathectomy may have to be considered in such cases, even for its purely symptomatic effect. As the management of hypertension varies so much from case to case, examples are given at the end of this article of the type of advice that I would give in a series of illustrative cases. I will now consider some of the more specific measures which have been used in the treatment of hypertension.

Thiocyanate Treatment.—The thiocyanates, if administered regularly to hypertensive patients, will produce a rather slight, inconstant, and unpredictable fall in blood pressure. Their use is dangerous unless controlled by frequent estimations of the thiocyanate level in the blood. Most physicians nowadays consider that the very doubtful gains of this treatment are not worth the trouble and the risk.

The Rice Diet.—Kempner (1944) has advocated the use of a diet consisting solely of rice cooked without salt, supplemented only by fruit and sugar. Such a diet is very low in protein and contains only traces of sodium. There is no doubt that it significantly reduces the blood pressure in most hypertensive cases, and that the blood pressure returns promptly to previous levels as soon as the diet is given up or if salt is added to the regime. Headache and other hypertensive symptoms are temporarily relieved, and papilloedema has been known to clear up in some instances. The majority of hypertensive patients are unable to continue on the diet for more than a few weeks, as it becomes very monotonous and distasteful. The rice diet, though interesting, is not a very practicable method of treating the ordinary case of hypertension.

Nephrectomy in Hypertension

As soon as it became known that human hypertension was occasionally due to unilateral renal disease and might be cured by removal of the faulty kidney a wave of enthusiasm for this method occurred in America and to a less extent in this country. Only in rare instances is the operation successful, and in most of the unsuccessful cases the evidence that the disease was entirely unilateral is unconvincing.

Nephrectomy should be seriously considered if the total renal function is normal and yet the intravenous pyelogram shows a non-functioning kidney on one side. The evidence should be backed up by cystoscopic observation of dye excretion, and preferably by retrograde pyelography. Nephrectomy is more likely to be successful in young persons who have no family history of hypertensive disease. The occasional successes have been dramatic and apparently permanent.

Sympathectomy in Hypertension

I now have experience of over 80 cases in which sympathectomy has been performed, in most of them by Professor A. M. Boyd. This series has recently been published (Platt and Stanbury, 1950), and it is difficult to do justice to the subject in one or two paragraphs. Undoubtedly sympathectomy is a measure which is applicable to only a small proportion of hypertensive patients. Most cases are either too severe to benefit by the operation or too mild to require it. Even in a carefully selected series really significant falls of blood pressure, if honestly recorded, result in less than 20% of cases. Most of these successes have been in young women with hypertension secondary to pyelonephritis.

On the other hand, the relief of headache and sometimes of papilloedema may be striking, even in cases in which the blood pressure does not seem to have been reduced. The operation should be reserved for young people with normal renal and cardiac function in whom severe hypertension causes symptoms. Extensive bilateral removal of the sympathetic chains as high as the fourth dorsal ganglia does not at present seem to me to give a higher percentage of successes than the more limited procedures advocated by Smithwick and by Adson. The argument that there is nothing else to be done will not lead to wise decisions when the advisability of sympathectomy is being assessed. It is possible that in the future slower acting sympathetico-lytic drugs of the type of pentamethonium iodide (Arnold and Rosenheim, 1949) may be used as an alternative to sympathectomy in some cases.

The results of sympathectomy may be briefly summarized by saying that in a very small group of cases the operation will produce results which cannot be obtained by any other means at the present time. It is still extremely difficult to predict the case in which the benefits will be worth while

Illustrative Cases and Opinions

Case 1.—A man of 30 has been turned down at a life insurance examination because of high blood pressure. After he has been resting on a couch for five or ten minutes, and reassuring words have been spoken, the third blood pressure reading is only 145/90. There is no albuminuria.

He should be told that the slight rise of pressure is insignificant, and that he can engage in every kind of activity and stand on his head if he wishes. It is sometimes difficult to give this advice and at the same time explain why the insurance company is not willing to accept him. A synthesis of these two conflicting statements can usually be made, however, by references to the strange habits of actuaries and statisticians.

Case 2.—A woman of 35, without symptoms, states that she was sent to hospital for high blood pressure in the eighth month of her only pregnancy three years ago. She then had albuminuria and ankle oedema. Labour was induced. She wants to know the advisability of embarking upon another pregnancy.

The answer will depend largely on the height of the resting blood pressure. If this is normal, or nearly so—say 140/85—there is a reasonable chance of a successful pregnancy, though it should be carefully supervised, because recurrence of pregnancy toxaemia is common. If the blood pressure is moderately raised—say 160/100—the chances of a successful outcome are small. If the diastolic pressure is 110 or over the risks of a further pregnancy are very great indeed and the chances of a living child almost negligible.

Case 3.—A man of 42 complains of severe periodic attacks of headache and of recent deterioration in vision. His blood pressure is 230/140 and there is bilateral papilloedema. There is no previous history of renal disease. His father is said to have died of Bright's disease at the age of 49.

This is malignant hypertension. If renal efficiency is already very much reduced the outlook is hopeless and no drastic measures should be attempted. If the renal function is normal, or nearly so, sympathectomy might be considered, as it may give symptomatic relief and improve the retinal condition. It is extremely unlikely to be a success in causing significant reduction of blood pressure, and it is doubtful if it will prolong life to any extent.

Case 4.—A woman of 50 complains of menopausal symptoms and is greatly worried because high blood pressure has been discovered. The initial reading is 220/125, but after

resting the levels are 180/105. Her mother died of a stroke at 65. There is no history of renal disease.

She should be assured that she has not got "the bad or malignant form of blood pressure," that her symptoms are largely those of anxiety, that the present level of her blood pressure is not dangerous, that it comes down with rest, and that it is compatible with many years of useful and active life. It would be wise to consider her duties, activities, responsibilities, and anxieties, and to try to alleviate them so far as is possible, while avoiding any tendency towards a life of useless and neurotic invalidism.

Case 5.—A woman of 30, suffering from attacks of headache, is found to have a blood pressure of 220/130. There is no albuminuria, and the renal function is normal, but there is a history of several episodes of urinary infection in the past.

This is the type of case in which sympathectomy is occasionally very successful.

Case 6.—A man of 40, in whom high blood pressure has been discovered, is sent to a surgeon for an opinion on the advisability of sympathectomy.

He should immediately be sent to a physician. Surgeons have no experience on which to assess what the prognosis of the case will be if operation is not performed; nor are they usually expert in assessing cardiac and renal function. They should not be asked to select cases for sympathectomy.

REFERENCES

Arnold, P., and Rosenheim, M. L. (1949). *Lancet*, **2**, 321.
Burgess, A. M. (1948). *New Engl. J. Med.*, **239**, 75.
Kempner, W. (1944). *N. Carolina med. J.*, **5**, 125.
Platt, R., and Stanbury, S. W. (1950). *Lancet*, **1**, 651.

CIVIL DEFENCE SERVICES

GUIDANCE FOR LOCAL AUTHORITIES

Following up the Civil Defence Regulations approved by Parliament last year, the Minister of Health, Mr. Aneurin Bevan, has now given more detailed guidance to local authorities on the planning of the Civil Defence Services for which he is responsible under the Civil Defence Act, 1948. These services cover evacuation of the civil population; care of the homeless; billeting in war-time; ambulance services; and water supplies and sewerage.

Circulars sent last week to local authorities in England and Wales indicate how the services for which they would have local responsibility have been planned centrally and would be likely to operate should the need ever arise. Plans for evacuation, for example, are based broadly on the scheme in operation during the last war. It is hoped that the local authorities will now be in a position to work out their arrangements for the services in question, and to go ahead with the training of volunteers for the Civil Defence Corps, particularly the welfare and ambulance sections.

Evacuation

For the purpose of evacuation the system developed in the 1939–45 war has been adopted, and the country will be divided into evacuation, neutral, and reception areas.

Evacuation areas have, as a first step in planning transport arrangements, been formed into 18 convenient geographical groups; each of these groups is linked with certain specified reception areas.

Local authorities for evacuation areas will consider what administrative machinery they will employ and which officer will act as chief evacuation officer. The appropriate committee will then have to prepare drafts of the documents required for registration of members of the priority classes wishing to take part in the evacuation scheme. Premises to be used for registration and as assembly points will need to be determined. Preliminary arrangements will be made by local education authorities for the medical examination of school-children who register for evacuation. Plans for local publicity in the event of an emergency will have to be considered, as will the arrangements to be made for the training in evacuation work of members of the Welfare Section of the local division of the Civil Defence Corps and other volunteers.

In reception areas the corresponding committees should select and earmark premises for the reception of evacuees and for use as "transit" hostels, sick-bays, etc. Preliminary arrangements will be undertaken for a canvass of billets. Different reception duties will be allocated among the council's existing staff and arrangements made for the training of the local division of the Civil Defence Corps and other volunteers who will be concerned with the reception, accommodation, and welfare of evacuees.

The relevant circular (37/50) stresses that in the view of the Minister the preparatory measures envisaged should not necessitate the appointment of additional senior officers to the council's staff. Some additional clerical assistance may be required, but in view of the imperative need for economy both in money and in manpower this should be kept to the absolute minimum.

Other Problems

County councils and county borough councils are being advised now on the first steps which should be taken in the light of the duties imposed upon them by the new regulations in regard to ambulance services (Circular 40/50). It is expected that plans will be made for the expansion in the event of war of the ambulance services provided under Section 27 of the National Health Service Act, 1946. Training will also be required for the ambulance sections of the local Civil Defence Corps and for the present ambulance staff. Generally speaking, the expanded ambulance service is visualized as a single integrated unit for conveying both war casualties and the ordinary sick. It is assumed that separate provision will be made by the Ministry for larger-scale transfers of patients between hospitals. At the same time the local ambulance services may be called upon to give some help with inter-hospital transport.

In most areas the number of ambulances needed in war will have to be increased to three or four times the peacetime establishment and the number of motor-cars needed will be between one-quarter and one-third of the augmented ambulance strength. The staff required for this purpose will have to be correspondingly increased on the scale of four people for each ambulance and two for each motor-car engaged whole-time, or their equivalents in part-time staff.

It is pointed out that in war the greater proportion of all ambulance staff would necessarily be women. It is proposed that plans should be put in hand for siting ambulance stations and for determining provisionally what arrangements should be made for the accommodation of the staff. Repair and maintenance facilities will need to be reviewed and increased. Since in wartime the ambulance service must be linked with the general civil defence control and communications system, and a separate system would be in existence for the operation of the fire service, it would not be possible for these two services to be combined, and those authorities who have at present a combined service will need to give thought to methods of re-establishing separate services in wartime.

Other regulations issued at the same time (Circular 38/50) relate to the care of the homeless. Here again the pattern follows that of the last war and rest centres are proposed with the kind of equipment and accommodation that became standardized by 1945. It will also be necessary to set up information centres, and for both purposes premises will need to be earmarked, particularly those which can be adapted for these purposes easily and quickly.

So far as water supplies are concerned (Circular 41/50) it is pointed out that the Government has initiated research into the effects of radioactive substances on water supplies. This research is still continuing and water undertakers will be given further information and guidance from time to time when results become available. A general direction was given during the 1939–45 war that undertakings should chlorinate their supplies. Most authorities have continued the practice since the war, but those who have not should be ready to ensure that all water is chlorinated, as a routine measure, before it is put into supply.

In yet another circular (42/50) authorities are asked to examine the situation in their areas and to consider what plans

can be evolved to maintain essential sewerage and sewage disposal facilities in the event of war. Further guidance will be issued when possible to enable authorities to assess the scale of emergency repair organization required. Meantime it should be assumed for purposes of initial planning that the authorities will require a repair organization at least as great as that which they had at the height of the aerial attacks on this country during the last war.

Reports of Societies

POLIOMYELITIS FOLLOWING INOCULATIONS

At a discussion in the Section of Epidemiology and State Medicine of the Royal Society of Medicine on April 21 on poliomyelitis following inoculations, Dr. W. H. BRADLEY, president of the Section, said that since 1941 the majority of children in this country had been inoculated at some time during their early years of life. In 1947 and 1949 poliomyelitis was widespread. Obviously by the working of chance some of the children so inoculated would be victims in the poliomyelitis outbreaks. Some observers had suspected, however, that the double event occurred more frequently than could be accounted for by chance. What had been written on this aspect of the matter was already influencing the attitude of the public towards one of the most important parts of preventive medicine —namely, diphtheria immunization—and the sooner the truth of this matter was known—that is, whether poliomyelitis in an undue proportion of cases followed inoculation—the better.

Professor S. M. BURNET, of Melbourne, said that he himself had had no more than a minor part in the investigation he was going to discuss. The recognition in Melbourne that cases of poliomyelitis were occurring with somewhat undue frequency among children who had undergone a pertussis or pertussis-plus-diphtheria inoculation was due to a young paediatrician attached to the State Health Department, Dr. B. P. McCloskey, whose careful investigation of the situation was published recently in the *Lancet*. His own figures were based on that paper and on an addendum not yet published. Dr. McCloskey first recognized the possibility of something being wrong by noticing a number of children, aged 1 to 3, with a completely paralysed arm or leg, and whose mothers asked whether their immunization two weeks previously had anything to do with it. He undertook a careful study of every child with a history of any sort of injection or immunization within the three months preceding the onset either of a paralysis or of an illness diagnosed as non-paralytic poliomyelitis, taking note of time and site of injections, agent used, etc. In 55 cases there appeared to be a relation between poliomyelitis and inoculation within the preceding three months. In the first group of cases were children in whom what appeared to be a significant paralysis occurred in the last inoculated limb, with the reservation that in one or two instances where there was a very short incubation period the previous inoculated limb was taken (many children had a sequence of inoculations).

	Cases of limb paralysis within		
Injection	0–30 days	31–60 days	61–90 days
Pertussis	7	0	0
Combined	20	4	0
Diphtheria	4	0	1

This concentration of cases in the first month was very far from being a random distribution. The remainder of the 55 cases were as follows:

	Cases of non-paralytic poliomyelitis		
Injection	0–30 days	31–60 days	61–90 days
Pertussis	2	0	2
Combined	8	3	4

Here there was no real deviation from a random distribution.

Character of the Outbreak

This epidemic in Victoria was the first severe one since that of 1937–8. The earlier epidemic started in mid-winter and went on through the summer, but the 1949 epidemic started in March (that is, in the autumn) and gradually worked to a peak in August and September (late winter and early spring), and with the approach of the summer months faded out. There were about 800 diagnosed cases. Speaking only of the poliomyelitis epidemic in Melbourne and the surrounding country, it seemed conclusive that children under 3, after the administration of pertussis vaccine or combined pertussis and diphtheria vaccine, were made vulnerable, especially from 7 to 16 days after injection.

What was the interpretation of these findings? The vulnerability seemed definitely localized to the limb in which the injection had been last done. The assertion might be ventured that when the poliomyelitis virus reached the central nervous system in children during this period local severe paralysis resulted. What interested him specifically was not so much the occurrence as the method of it. What was the connexion between the immunization and the poliomyelitis? It was essential that the pathogenesis should be clearly understood. The injection of the poliomyelitis virus via the needle or syringe could be excluded. It would be sophistry to conclude that any contamination accounted for more than a very occasional case. The alternative was that the injection of the immunizing agent created an altered bodily condition of some sort by reason of which infection with poliomyelitis virus, which would normally not result in paralytic disease, was made capable of doing so. The favoured explanation was that at the time of immunization the children who were going to become paralytic were infected with the virus and suffering from "virusaemia," and the deposition of the vaccine in the tissues created an inflammatory centre at which the virus was localized and from which it multiplied and passed up the neuronal path, producing a localized paralysis. Professor Burnet did not accept that hypothesis. There was no evidence, he thought, that the poliomyelitis virus was ever circulating in significant amounts in the blood.

Possible Explanations

Professor Burnet discussed other theories only to dismiss them as unlikely explanations. The hypothesis he favoured was that this mass of inflammatory cells which developed around the deposit of antigen might, after the first few days, begin to show a certain degree of fibrosis or scarring, with the involvement of nerve terminals or small trunks, producing a change in the nerve cells which rendered them vulnerable. In some way that irritating deposit provoked a reflex nervous disturbance in the corresponding region of the spinal cord. Was the deposition of the inoculant more, or less, effective if the administration was intramuscular than if it was subcutaneous? Was the presence of other agents in the vaccine significant? He was not able to say definitely whether or not the diphtheria content of the combined vaccine was alum-precipitated. Whatever theory was adopted for the occurrence a possible difference of strain of the poliomyelitis virus must be considered very closely.

What was to be done in the future? First, all the facts must be assembled as clearly as possible. A very large number of pertussis inoculations had been done in this country without any trace of poliomyelitis following. In America he thought that so far no paediatrician or public health officer had been able to show that this conjunction of events had happened in the United States. The occurrence of poliomyelitis among the non-inoculated must also be examined. The type of outbreak, the intensity of incidence, and the strain of virus concerned were all matters of importance in this connexion. The vaccine used must be noted, the dosage, the presence or absence of alum, and whether the administration was intramuscular or subcutaneous, also the age and sex of the patient.

It might be that in Victoria the fact that immunization was done at a rather later age than elsewhere (the ages of the children in this series ranged from 9 to 33 months) had some bearing on the situation. But he added that it seemed to him that the continuation of diphtheria immunization was an absolute necessity for any civilized country. It would be an appalling setback if they had to withhold a procedure so full of promise. It was true that it might be necessary to cease

pertussis vaccination during the time of a clearly defined epidemic of poliomyelitis, but he was hopeful that within a year or two it would be possible to continue with full confidence those immunization procedures which were becoming essential parts of our public health measures and of our general community life.

Discussion

Dr. D. H. GEFFEN said that it was necessary to consider this question against the background of the decline in diphtheria notifications and deaths as a result of immunization. Not so many years ago there were 60,000 cases of diphtheria a year in this country, and 3,000 deaths. It was established that diphtheria was preventable by immunization; with regard to whooping-cough it could only be said that it was promising. An investigation made in his borough (St. Pancras), following a report by an assistant medical officer of the L.C.C., showed that, of 19 children under 5 years of age who had developed poliomyelitis, 6 had been immunized within the previous fortnight. The paralysis was limited to the left arm, in which an intramuscular injection with a combined vaccine had been made. He had been in communication with America, but there they had no series of figures in any way comparable with those in England, which was surprising in view of the number of cases of poliomyelitis in America and the vast extent of diphtheria immunization. Perhaps instances of the double event, not being looked for, had passed unnoticed. On the other hand it was possible that the reason for the apparent American immunity was that in America the age of immunization was higher than in England (a statement contested by Dr. Bradley), and that the risk was somewhat higher with younger than with older children. It was too early to give any impression as to the rate of recovery, but J. K. Martin followed up a number of cases and reported complete recovery in 50%.

How serious was the risk that if a child was immunized it would develop poliomyelitis? With several hundreds of thousands of children immunized every year, and the very small number of such children who developed poliomyelitis within a fortnight or a month of immunization, the risk appeared very slight indeed. But that might not be a fair method of estimation. They had to consider, not the number of children injected, but the number of injections given in a particular area to children of a particular age during a time when poliomyelitis was epidemic in that area. They were also beginning to realize that enucleation of the tonsils might activate or originate a bulbar paralysis; he had seen two cases following extraction of teeth, and one child developed complete paralysis a fortnight after appendicectomy. The part played by coincidence in these cases was unknown. But now at last they were beginning to see in the future a line of research which might help them to discover the cause of the paralysis in those who were carrying the virus of poliomyelitis.

Professor BRADFORD HILL gave some preliminary account of a report on the statistical aspect of the matter which he is preparing for the Ministry of Health. He explained the statistical criteria taken, and gave examples of the difficulties and pitfalls of statistical calculations. A point he made was that the risk was not less with the older than with the younger children, as an earlier speaker had suggested, but that inoculation took place more frequently at the earlier ages. Dr. G. M. FINDLAY gave an account of experiments on mice infected with a strain of poliomyelitis virus. It was shown that the effect of the injection of an antigen was to precipitate a more rapid onset of paralysis and death.

Dr. A. H. GALE, in order to maintain the proper perspective of this subject, gave some figures. He said that in 1949, with a population aged 0–4 of 3,702,000, the number of children to whom immunizing injections against diphtheria were given was 528,000. The number of notifications of poliomyelitis among children under 5 was 2,163. The number of "double events" reported—though this figure, of course, was of doubtful value—was 46. In 1938–41, at the time when the diphtheria immunization scheme was getting going, the annual number of deaths from diphtheria was some 2,400. The latest figure for deaths from diphtheria (for 1949) was 85, and there were 1,897 notifications.

In the further discussion several medical officers of the London County Council participated. The possibility of some mutation of the virus, to explain the difference between the American and the British and Australian figures, was mooted. Dr. W. MITMAN suggested the possibility that what happened was the conversion, as a result of inoculation, of a non-paralytic poliomyelitis into a paralytic one. In other words, the infection might be present, and the only effect of the inoculation was to make it manifest. Professor CRUICKSHANK suggested that the difference between the British and American figures was due not to mutation, but to the fact that the Americans had not got a combined antigen. Dr. H. S. BANKS pointed to the 1947 very extensive outbreak of poliomyelitis in this country, and the fewness of the double events recorded, which again might rather suggest a lack of awareness on the matter. Dr. PARRISH pointed out that there were other sequels of whooping-cough inoculations investigated in this country—namely, encephalopathy—but Professor Burnet said that no case of encephalopathy had been recently reported in Australia.

In replying on the discussion Professor BURNET said that it seemed to him that in the United Kingdom they were dealing with very similar phenomena to those encountered in Australia. It was necessary always to bear in mind the extensive immunization which had taken place without any sequels of this kind. There was always the possibility of mutation, but he did not think that was the only answer. On the whole he felt hopeful that as a result of the fresh information obtained following these occurrences immunization would be robbed even of this, numerically slight, degree of danger, and in the process evidence might also be obtained as to what it was which decided whether an infection was going to be subclinical or issue in the various grades of non-paralytic poliomyelitis or the full paralytic disease.

Dr. BRADLEY said that he was grateful to Professor Burnet for ending on that happier note. If this unfortunate happening opened up more fundamental knowledge concerning the localization of the paralysis it would not be such an ill wind as they felt it at the moment.

Preparations and Appliances

A CERVICAL KNIFE HANDLE

Mr. TERENCE G. ROBINSON, M.R.C.O.G., gynaecologist, the General Hospital, South Shields, writes: Whilst using an ordinary scalpel for amputating the uterus during the course of a subtotal hysterectomy, especially when the uterus contains a large mass of fibroids, many gynaecological surgeons must have wished for a knife the blade of which is set at an angle.

The knife handle here illustrated is extended at an angle of 30 degrees and twisted to lie comfortably in the palm of the hand, where it is held by the third and fourth fingers and thus prevented from rotating. At the other end the blade is set at an angle of 45 degrees to the handle, and it has proved helpful for the above purpose. I have found this knife useful also in cutting a section of the cervix for biopsy, particularly in cases of carcinoma with considerable fixity. The knife is useful for cutting through the vagina in the course of Wertheim's hysterectomy, and also for incising the uterus in lower-segment caesarean section. The fact that the angle on the handle prevents unsiting of the blade by the operator's hand makes these operations much easier.

The handle was made for me by the Medical Supply Association, 10–13, Teviot Place, Edinburgh, 1.

Correspondence

The Granny Racket

SIR,—The *British Medical Journal* of March 25 (p. 683) carried an item by Sir Heneage Ogilvie attacking a series of articles which I wrote for the *Reader's Digest* on American lessons to be learned from the British National Health Service. Sir Heneage Ogilvie questions the veracity of the statistics which I cited. He questions my reporting that the death rate in the British Isles has gone up under the National Health Service as compared to the year preceding; my statement that the number of medical students had slightly decreased; and my comment that there are long delays for surgical operations.

May I point out that all of my statistics were taken from official British sources. My statistics on the death rate are obtained from the Quarterly Return of births, deaths, and marriages issued by the Registrar-General. The latest edition now available in the United States is that for the third quarter of 1949 (No. 403). On page 6 the following figures will be found:

Deaths Per Ten Thousand Population in England and Wales

Before the National Health Service Went Into Effect		*After the National Health Service Went Into Effect*	
September quarter, 1947	89	September quarter, 1948	93
December quarter, 1947	111	December quarter, 1948	115
March quarter, 1948	123	March quarter, 1949	149
June quarter, 1948	102	June quarter, 1949	110
		September quarter, 1949	92

These are the statistics used in my article, except that at the time of publication in January some of the figures were provisional as then issued by the Registrar-General, and very slight changes not altering the basic facts were made in the most recent Registrar-General's report.

It is further significant to note that in the same year throughout the Western world, including the United States, the death rate was declining.

My report of the slight decline in the number studying medicine was based on the *British Medical Journal* (September 3, 1949, p. 533), wherein it states: "The number of medical students admitted to medical schools in Great Britain and Ireland in 1947–8 was 2,797 and in 1948–9 was 2,653"—or a decrease of 144.

The third statement which he challenges refers to the delays occasioned by the congestion of hospitals under the National Health Service in obtaining surgical operations of a non-acute nature. I was told this by the officials of a number of the hospitals and by a number of the surgeons and practitioners. Interestingly, this is further verified by a statement in the *Practitioner*, of which Sir Heneage Ogilvie is the editor, in its review of the first year of the National Health Service. Therein, on page 18, we find this statement: " . . . The waiting-lists for non-urgent cases are longer than ever before, and some patients requiring operations are being warned by the almoner's office that it may be a year before they are admitted." This report of the *Practitioner* continues to state: "The paper work of the surgeon in such a hospital has increased enormously, and threatens to become a real burden." On page 39 this statement is noted: "It is not surprising that the number of discontented patients is steadily increasing. . . . This naturally has a bad effect on the health of the individual. . . ."

Let me emphasize again, as I do in the *Reader's Digest*, that my analysis of the first year of the British National Health Service was intended specifically for its lessons to us in America, where we are considering changes in our health programme, and was not intended as any criticism or interference in the decisions of the British people for themselves. I do submit, however, since meticulous care was taken as to the accuracy of all statistics, and only official and direct British sources were used, Sir Heneage Ogilvie was neither right nor just casting unsupported aspersions on their accuracy.—I am, etc.,

Philadelphia. HAROLD E. STASSEN.

⁂ Some of the criticisms against which Mr. Stassen defends himself did not appear either in Sir Heneage Ogilvie's paper entitled "The Granny Racket" or in our leading article (March 25, p. 713), and his letter is mainly concerned with Sir Heneage's remarks in the *Spectator* (March 17). A comparison of the crude death rates in the four quarters of the year before the N.H.S. came into being with the rates in the four quarters of the first year of operation of the Service takes no account of the chance fluctuations in rates which are bound to occur. In 1947, the last full calendar year before the advent of the N.H.S., the population (in round figures) of England and Wales was 43,050,000 and there were 517,615 deaths. In 1948 the population was 43,502,000 and the number of deaths 469,898. In 1949, the first full calendar year of operation of the N.H.S., the population was 43,785,000 and the number of deaths 510,819. From these figures it can be seen that in spite of a rise in the population of three-quarters of a million there were 6,796 fewer deaths in 1949 than in 1947. It is difficult to reconcile with these figures Mr. Stassen's remark in the *Reader's Digest*: "But it does seem that the additional tombstones in the British cemeteries—72,125 more than in the year before the National Health programme went into effect—are grim signposts. . . ." The figures quoted by Mr. Stassen of students admitted to medical schools are correct, but it seems premature to attribute a small decline in the number of medical students to the start of the N.H.S.—ED., *B.M.J.*

Treatment of Rheumatoid Arthritis with Deoxycortone and Ascorbic Acid

SIR,—The difference between the excellent results reported in the treatment of rheumatoid arthritis with deoxycortone acetate and ascorbic acid[1-13] and those obtained by the clinical members of the Empire Rheumatism Council Scientific Advisory Committee and Research Subcommittee (using the same substances and essentially the same technique) has prompted this letter.

The original proponents of this method of treatment claimed that: "Fifteen to 30 minutes later (after the injection) pain had practically disappeared and the mobility improved as much as the anatomical changes in the joints and muscular atrophy would allow. All the patients reacted in a similar way. In some cases the improvement was astounding. One of the patients was completely crippled by pain and contractures after rheumatoid arthritis for 15 years: after *one* combined injection, she sat up with ease and moved her arms and legs about freely: all her pain had gone. . . . The effect lasted from two to six hours, occasionally more than 24 hours. . . ." —and occasionally "for two to three weeks."

Such results are claimed also by the various authors mentioned above, from Poland, Cyprus, Naples, Bagdad, as well as from England. It is noteworthy, however, that such an experienced investigator as Spies,[14] as well as Hart and Starer,[15] Currie and Will,[16] and some of us [17-20] have already published results at variance with those described above.

The undersigned, each of whom has had experience in the assessment of "cures" in rheumatoid arthritis, have unanimously found this treatment to be of no significant benefit in rheumatoid arthritis. The total of cases treated amounts to 172. Of these, some limited improvement was noted in 14 cases (subjective only in 11 and objective in 3). Many of us have had the opportunity of treating cases with adrenocorticotrophic hormone and of observing in the U.S.A. the therapeutic effects of cortisone, and we were convinced immediately of the very great value of these substances. In contrast, when cases are adequately studied under controlled and standardized conditions, treatment with deoxycortone and ascorbic acid produces no more improvement either subjectively or objectively than can be observed to follow other forms of injection treatment—e.g., procaine or even normal saline.

In view of the widespread publicity being given to the use of deoxycortone and ascorbic acid in the treatment of rheuma-

toid arthritis we have thought it desirable to report our failure to obtain any significant benefit and to record the unanimity with which we are agreed on this.—We are, etc.,

W. S. C. COPEMAN.	O. SAVAGE.	G. D. KERSLEY.
J. J. R. DUTHIE.	F. DUDLEY HART.	H. A. BURT.
E. FLETCHER.	J. H. KELLGREN.	E. G. L. BYWATERS.
G. N. MYERS.	PHILIP ELLMAN.	S. J. HARTFALL.

London, W.C.1.

REFERENCES

1 Lewin, E., and Wassen, E., *Lancet*, 1949, **2**, 993.
2 Le Vay, D., and Loxton, G. E., ibid., 1949, **2**, 1134.
3 Fox, W. W., ibid., 1949, **2**, 1156.
4 Loxton, G. E., and Le Vay, D., ibid., 1949, **2**, 1204.
5 Douthwaite, A. H., ibid., 1949, **2**, 1244.
6 Robertson, J. A., ibid., 1950, **1**, 134.
7 Fox, W. W., ibid., 1950, **1**, 135.
8 Nashat, F., ibid., 1950, **1**, 135.
9 Landsberg, M., ibid., 1950, **1**, 134.
10 Le Vay, D., and Loxton, G. E., ibid., 1950, **1**, 209.
11 Hallberg, L., ibid., 1950, **1**, 351.
12 Spanopoulos, G. A., ibid., 1950, **1**, 463.
13 Morelli, A., and Pusateri, G., ibid., 1950, **1**, 284.
14 Spies, T. D., Stone, R. E., de Maeyer, E., and Niedermeier, W., ibid., 1949, **2**, 1219.
15 Ibid., 1949, **2**, 1203.
16 Ibid., 1950, **1**, 708.
17 Kellgren, J. H., ibid., 1949, **2**, 1108.
18 Hartfall, S. J., and Harris, R., ibid., 1949, **2**, 1202.
19 Fletcher, E., Lush, B., Buchan, J. F., and Wolff, S., ibid., 1950, **1**, 94.
20 Kersley, G. D., Mandel, L., and Jeffrey, M. R., ibid., 1950, **1**, 703.

Dental Caries in the Golden Hamster

SIR,—I have read Dr. J. D. King's paper (April 15, p. 876) and suggest that another series of experiments be carried out in which the carbohydrate-rich feeds be hard baked both for the parents and for the animals after weaning, so as to give the rodents use of the teeth as in grinding up their natural food. There is much evidence that the decay of teeth in man is due to disuse of them through the use of cutlery and soft-cooked food.—I am, etc.,

Horley, Surrey. LEONARD HILL.

Development and Behaviour of Children

SIR,—Professor N. B. Capon in his Charles West Lecture (April 15, p. 866) writes:

"Despite the scarcity of reliable corroborative evidence, a strong presumptive case can be made for the view that the seeds of nervous instability in adult life are often sown during childhood. My own experience is now long enough to have shown me—and there must be many present with longer experience who would doubtless agree—that a prolonged period of emotional imbalance in childhood may become ingrained in a person's constitution, and the instability may then be transmitted, in one form or another, to the next generation."

In other words the seeds mentioned, which, being sown after birth, can only have been acquired from the environment, are capable, through their germination and growth, of transmission to the offspring. This is downright Lamarckism, the theory of the inheritance of acquired characters. It is hardly likely that a theory never proved convincingly even under the strictest experimental conditions and completely disproved by modern genetics should be substantiated by observations made in the field of human behaviour, where conditions are impossible to control.

It is disturbing to find Professor Capon, in company with the other paediatricians who, he says, agree with him, prepared to abandon a fundamental and well-established principle and "despite the scarcity of reliable corroborative evidence" to revert light-heartedly to a doctrine which, to say the least, has never gained general credence. I may of course have mistaken Professor Capon's meaning. If so I hope he will correct me.—I am, etc.,

Cambridge. FF. ROBERTS.

Parotid Cysts

SIR,—Mr. H. D. Moore's medical memorandum (March 18, p. 649) has stimulated me to look through the cases of cystic conditions of the parotid among my records of some 500 patients with diseases of the salivary glands. Cysts of the parotid are certainly uncommon, and their diagnosis and classification are difficult, as some of the cystic conditions in the parotid region may really have no connexion with the gland tissue at all. The first case reported by Mr. Moore may be one of these para-parotid cysts. I have operated on two cases of this type. In one case the cyst was lined with flattened epithelium and surrounded by connective tissue, and in the other no definite epithelial lining could be made out and the cyst appeared to be merely a fibroid capsule. I have seen other cases which have been clinically of this type but which have not come to operation.

The clinical history in Mr. Moore's second case suggests that this was really a case of recurrent pyogenic parotitis, such as those I have described.[1 2] The recurrent mumps-like attacks, the pain, the foul-tasting fluid, and the sialograms all support this view. Had investigations been carried out on a catheter specimen of the duct saliva I think these would certainly have shown a turbid saliva of "snowstorm" appearance, containing pus cells and the typical epithelial cells and yielding a *Streptococcus viridans* on culture.

In these cases of recurrent pyogenic parotitis the obstructive element may be most marked in the terminal ducts and acini, in the larger ducts, or in the main duct itself. In one case of mine of this type, in a girl of 9, a visible and palpable swelling was present in the pre-masseteric portion of the duct. I have reported a case under the heading: "Idiopathic Dilatation of Stenson's Duct."[3] In this case the patient was a surgeon and the dilatation involved the main right parotid duct. The duct frequently became distended, particularly when the patient was operating, and he had learnt to empty it by pressure. Investigation failed to reveal any evidence of infection, and the cause appeared to be a failure of dilatation of the duct orifice. An intrabuccal operation cured both these patients.

There are one or two comments I would like to make in connexion with the problems of diagnosis and classification. Adenolymphomata can rarely be distinguished clinically from mixed tumours, but patients may occasionally report variations in size of the tumours from time to time, and they may be rather softer than the mixed tumours. Myxomatous degeneration frequently occurs in mixed tumours, but areas of actual cystic change are usually small and the detection of fluctuation is unlikely. Congenital cysts of the parotid certainly occur, and I have seen one case of this type in a child of 1 year and 8 months. An acquired cyst which is recognizable clinically and associated with rapid increase in size should always suggest the possibility of a primary malignant tumour. In a case of this type in a man of 76 there had been a three-months' history of a painful swelling. This was clinically cystic, and histologically it was a squamous-celled carcinoma. In another case, in a woman of 81, a clinically cystic tumour of the right parotid proved to be a malignant parotid tumour. At the present time I have a patient of 30 under observation who has what is clinically a benign cyst of the right parotid.

Diagnostic problems abound in the parotid region. Some time ago I had a patient with a very soft tumour in the region of the hilum of the gland, and preliminary irradiation was given to harden the capsule. At operation I found that the treatment had been given to a very soft lipoma inside the parotid capsule and surrounding the commencement of the duct.—I am, etc.,

London, W.1. REGINALD T. PAYNE.

REFERENCES

1 *Lancet*, 1933, **1**, 348.
2 *Proc. R. Soc. Med.*, 1938, **31**, 398.
3 *Lancet*, 1936, **1**, 655.

Treatment of Menstrual Disorders

SIR,—In his comments on my paper (March 18, p. 626) Dr. Raymond Greene (April 15, p. 901) expresses views with which I am very largely in agreement, particularly so far as the underlying principles are concerned. As one who in the past has criticized strongly the failure of others properly to assess the significance of their results I must admit to feeling some misgivings that Dr. Greene, as well as the leader writer in the *Lancet*,[1] should have gained the impression that I have made unwarrantable claims in my paper. May I therefore be permitted an opportunity to correct, or at least amend, this impression?

It was not my intention to make any claims for the therapeutic regime employed, but merely to put on record the results

I had obtained and to draw from them what appeared to be reasonable inferences. No one would suggest, for example, that I had "claimed" anything for it in the treatment of secondary amenorrhoea. The question, then, is whether or no the treatment had anything to do with the induction of ovulation, and here, as Dr. Greene observes by quoting from my paper, his italics placing emphasis where I too intended it, I merely stated that it " . . . appeared to be responsible for the re-establishment of ovulation. . . ." That, I submit, is scarcely a claim in the strictest sense of the word. Granting the difficulties that may exist in the way of establishing the definite non-occurrence of ovulation in some women, and admitting that my criteria were far from the strictest, I still think that the presumption of non-ovulation (expressed as such) may be permissible on clinical grounds in several instances, such as cases of prolonged and excessive wholly irregular bleeding of the "metropathic" type, or most (though admittedly not all) cases of long-standing marked oligomenorrhoea. In Case 35, for example, I do not feel that the assumption that she was anovular before treatment is unreasonable, or that the conclusion that ovulation and conception occurred during the last month of treatment can easily be escaped. Patients with regular but anovular cycles are, of course, in a different category, and I presume that it is these patients whom Dr. Greene has particularly in mind. I agree with him entirely that the establishment of the invariably anovular nature of their cycles may be most difficult (or even impossible) and I would certainly not like to have it thought that I was making any "claims" for this group of cases. Case 39 (Table IV), for example, proves very little, though Cases 27, 28, and 39 are, shall we say, suggestive.

Again without wishing to make any "claims," but merely observing the results obtained, I would like to point out that the six pregnancies recorded occurred among a total of 27 married non-climacteric women (the group of women with regular menorrhagia is excluded because they were not given the treatment in question), so that the incidence was actually 22% of the admittedly very small population "at risk." This would presumably double the impressiveness of the figure calculated by Dr. Greene and may therefore increase the importance of the slight difference between his regime and the one I used. The results, I reiterate, *prove* nothing, but coincidence would seem to have operated on so many occasions in this small series, if indeed there is no causal relationship involved, that trial at the hands of others would be reasonable, especially in view of the shortcomings of other methods of inducing ovulation.—I am, etc.,

London, W.C.1. G. I. M. SWYER.

REFERENCE

1 *Lancet*, 1950, 1, 628.

Deficiency Patterns in Metallic Poisoning

SIR,—I must thank Dr. Rosemary Biggs (April 8, p. 842) for suggesting some alternative interpretations of the signs I described in a case of gold poisoning in my recent paper (March 18, p. 634). Although I agree that thrombocytopenic purpura would be a reasonable interpretation of the data I supplied, I do not think it is the correct one. For reasons which would appeal to those who have to depend on overworked and understaffed laboratories, but which are not relevant to the main thesis of the paper, an estimation of the blood prothrombin level was not carried out. I doubt, however, if this test and a further blood count would have exhausted the diagnostic possibilities of the case. Dr. Biggs states that I suggested the patient suffered from an interesting combination of vitamin K deficiency and thrombocytopenic purpura simultaneously. It may be that the findings as I set them down could be interpreted in that fashion, but to her and not to me belongs the credit for this interpretation. In fact I did not set out to find vitamin K deficiency in the patient; I did not find vitamin K deficiency; I have no reason to believe that his reserves of vitamin K were not adequate; and I did not consciously regard or treat the case as one of vitamin K deficiency. I saw a petechial rash of symmetrical distribution and peculiar configuration; and I noted bleeding from the gums and melaena in a patient recently treated with gold. Other observers have reported hypoprothrombinaemia in similar cases. The clinical findings were sufficient for my purpose.

What I deplore is not so much my omission of further laboratory investigation but my inability to convey to an intelligent reader what I saw in these cases. Perhaps if I had said that Peters's hypothesis allowed for stereo-isomers of deficiency disease it would have sounded abstruse at first but more convincing in the long run. Thus from a single biochemical lesion we can trace one pattern of lesions which expresses a genuine vitamin deficiency and a mirror image which derives from interference with the protein of the compound enzyme. What I saw were mirror images—mostly incomplete—but none the less true reflections, for in natural deficiency diseases the clinical patterns are rarely complete and often confused. The fact is that a competent dermatologist might dispute my interpretation of the findings in Case 2 just as Dr. Biggs has in Case 1, but when all the cases are considered together as possible expressions of biochemical lesions there should be enough, as your annotator suggests, to stimulate a research worker into profitable activity.—I am, etc.,

Bristol. WILLIAM HUGHES.

Acute Inversion of the Uterus

SIR,—I am in complete agreement with the remarks of Dr. C. J. Dewhurst (April 15, p. 905) concerning the case of acute inversion of the uterus reported by Drs. D. Crook, F. Kohn, and myself. At the time of our request for a "flying squad" the members of the squad were already engaged in another resuscitation case, and therefore in view of the gravity of the patient's condition it was decided to remove her to hospital.

In a subsequent case of retained placenta associated with severe collapse the situation was promptly retrieved by the administration of intravenous plasma and the exhibition of morphine and ergometrine. This case resembled our reported case so much that the immediate recovery associated with the commencement of intravenous therapy prompts me to urge that all obstetric general practitioners should carry plasma or intravenous saline sets. This has been the practice of my partner and myself for some time now, and we appreciate the added confidence we receive from its presence in our kit. In the case of retained placenta quoted above we are satisfied that it was of cardinal importance in preventing a maternal death.—I am, etc.,

Ruislip, Middlesex. T. DAVID LAMBERT.

Discovery of the Electrocardiogram

SIR,—Your readers will have been interested in the article by Mr. S. L. Barron on the development of the electrocardiograph in Great Britain (March 25, p. 720). This development, from the first simple discovery to the present widespread clinical applications, makes a fascinating story. It is evidently important that a résumé should be quite accurate, and I am therefore writing to correct the dates given in connexion with A. D. Waller's work. His discovery dates from 1887, not 1890, and the year of the *Philosophical Transactions* reference given at the end should read 1889, not 1890.

My father's idea was simple and original, and, in the words of Sir Thomas Lewis, "He was the first to obtain an electrocardiogram. . . . The discovery long preceded the introduction of the string galvanometer, and was the more remarkable in that it was accomplished in the 'eighties.'"[1] Einthoven[2] tells us that Waller introduced the term "electrocardiogram." One of his records, obtained by means of Lippmann's capillary electrometer, is well illustrated in the *Journal of Physiology* (1887, **8**, 229). It was such a record which stimulated Einthoven to produce his wonderful instrument. Chest electrodes were used; the date 1877 mentioned by Mr. Barron should be amended to 1887. The account of the inaugural address which Waller gave at St. Mary's Hospital Medical School includes illustrations of a man with his hands in water and of a dog standing with one fore paw and one hind paw in dishes of water in order that their electrocardiograms might be recorded.[3]

Those interested in the history of the electrocardiogram will no doubt be glad to have these additional references, which do not appear to be well known in Great Britain.—I am, etc.,

London, W.C.1. MARY D. WALLER.

REFERENCES
1 *British Medical Journal*, 1922, 1, 459.
2 *Lancet*, 1912, 1, 861.
3 *British Medical Journal*, 1888, 2, 751.

*** Dr. A. D. Waller's paper entitled "On the Electromotive Changes Connected with the Beat of the Mammalian Heart, and of the Human Heart in Particular" was read before the Royal Society on June 21, 1888, and published on June 6, 1889. The volume of the *Philosophical Transactions* in which the paper appeared was not completed until 1890, and the title page bears that date—ED., *B.M.J.*

Contraception and the Catholic

SIR,—Dr. Marie Stopes (April 8, p. 843) writes that certain methods of birth control are approved by the Church of Rome. The Roman Catholic Church has never approved of artificial contraception. It is worth while to reaffirm this, because outside the Roman Catholic Church the two terms "birth control" and "artificial contraception" are sometimes used as if they were synonymous, while in practice they are two things which may be very different.—I am, etc.,

Black Notley, Essex. M. C. WILKINSON.

Ergonomics Research Society

SIR,—In July, 1949, a group of people decided to form a new society for which the name "The Ergonomics Research Society" has now been adopted. Ergonomics by definition is to mean "the study of the relation between man and his working environment," particularly the application of anatomical, physiological, and psychological knowledge to the problems arising therefrom. This covers the field which has variously been described as "fitting the machine to the man," human engineering, that part of industrial psychology not concerned with vocational guidance, etc.

The society is intended to bring together workers in the fields of applied psychology, physiology and anatomy, and movement study. Two scientific meetings have already been held, at the second of which the rules for the society were adopted. They lay down that ordinary members shall be research workers in the above fields and that others interested may become associate members. Meetings will be held three or four times a year at which papers will be read, demonstrations given, and business transacted. It is hoped to publish papers presented to the society.

Anyone interested in the activities of the society is invited to write to the secretaries for further information.—We are, etc.,

R. C. BROWNE, H. D. DARCUS,
C. G. ROBERTS, R. CONRAD,
O. G. EDHOLM, W. E. HICK,
W. F. FLOYD, G. M. MORANT.
Members of Council.

H. MOUND,
Treasurer.

K. F. H. MURRELL,
T. P. RANDLE,
Secretaries.

The Ergonomics Research Society,
Sussex House, 34, Palace Road,
East Molesey, Surrey.

With Whales and Seals

SIR,—I have just returned from more travels and been able to go over recent numbers of the *Journal*, and I would like to answer the letters you have had regarding the cruelties I mentioned (December 24, 1949, p. 1467) in connexion with the whaling and sealing.

After three years of research into the whaling question, experiments with an electrical harpoon are now in an advanced stage, and we are hoping that the British firm which has done most to co-operate in this will soon be able to say that their slaughtering is at last clean and humane. The whole industry will almost certainly then follow their example for its own good.

With respect to sealing, I am glad to say I have just had a report from the Federal Government of Canada. They are now pushing ahead on a study of the harp-seal problem. By discussions with the industry and a biological study of the seals they are preparing for an early approach to international control to prevent the cruelties and check the numbers taken.

But there is so much to be done, and it is a sad thought that man generally becomes more humane only when it pays him economically. We are still savages. Human males still leave wild fur animals for days on end mutilated in traps to get skins to hang on the bodies of their women. This trapping to obtain furs for the fashion trade is one of the most horrible industries I have known, as bad and often worse than whaling or sealing, but only very little worse than our rabbit trapping in Britain, which is on a tremendous scale. And yet to the average housewife the sight of bodies of rabbits in the shops with the bones sticking out of mangled limbs means nothing. And again, I have just witnessed a deplorable exhibition of attempts to kill animals in a Ministry-of-Food controlled slaughterhouse. Progress in our standards can so easily be ended by indifference, and degeneration then spreads so rapidly.

I would appeal to doctors and their wives everywhere to use the great influence they have with people they meet to help in the guardianship of our fellow creatures of the wild. There are many organizations and plenty of judges on the bench willing to raise their voices and give heavy penalties against ill treatment of such as horses and domestic pets. But the law in general ignores cruelty to the wild things that should share the earth with us, both in the name of sport and industry. It goes on under the eyes of everyone everywhere, and we have only last year the sad exhibition of a British Parliament in Westminster discarding a Bill to put an end to the more vicious forms of blood sports.

And I would say this to my colleagues. Once you take a direct interest in the welfare of other animals they open up a tremendous field of wider outlook; and they will help you to get the behaviour of the human species, with its schemes and temporary so-called civilization, into a proper perspective. I am indeed grateful to those who have shown this interest in the troubles of the whales and seals.—I am, etc.,

Broughty Ferry, Dundee. H. R. LILLIE.

POINTS FROM LETTERS

Teething

Dr. G. A. POWELL-TUCK (Birmingham, 27) writes: The question of the treatment of teething I have always found most difficult until after reflection I had the following mixture made up: glycerin ½ oz. (14 ml.), sod. brom. 30 gr. (2 g.), tr. bellad. munims 30 (1.8 ml.), nepenthe minims 30, aqua anethi to 2 oz. (57 ml.). The dose is 1 dr. (3.5 ml.) as required. If left standing the belladonna tends to separate out, but this readily dissolves if the bottle is well shaken. I asked a chemist how best to overcome this and he suggested liquor atropinae in place of the belladonna, but I have always used the original prescription and have found it quite satisfactory.

Acute Abdominal Disease

Dr. J. L. TRENEMAN (Durban, S.A.) writes: The refresher-course article "Acute Abdominal Disease" by Mr. V. Zachary Cope (March 11, p. 596) leads me to make a criticism which is intended to be constructive and not destructive. In his commencing paragraph Mr. Cope mentions by name the time-honoured traps, among them tabes and herpes. I consider that coronary thrombosis should have been named, being as common as it is and, further, because an acute abdominal catastrophe is classically given as a condition to be considered in the differential diagnosis of coronary occlusion.

A Shot-filled Appendix

Dr. ALFRED W. J. STOCKS (Young, N.S.W.) writes: Dr. J. A. G. F. Rose (January 21, p. 191) writes of an appendix containing multiple lead shot. I saw such a case last year in which the appendix was completely filled with lead shot. The symptomatology was that of heaviness within the right iliac fossa and obscure but persistent "neuritic" pains in the right leg. The symptoms disappeared with the removal of the appendix.

Obituary

W. H. BUTTER STODDART, M.D., F.R.C.P.

Dr. W. H. Butter Stoddart, who died in London on April 12 at the age of 81, was for many years one of the most prominent figures in British psychiatry.

William Henry Butter Stoddart was educated at the City of London School and at University College Hospital, London, qualifying in 1893. He graduated M.B., B.S. a year later, and proceeded M.D. in 1898. He had taken the M.R.C.P.London in 1897, and was elected F.R.C.P. in 1908. After leaving University College Hospital he held the post of resident medical officer at the National Hospital, Queen Square. He had always been interested in the psychological aspects of medicine, and on deciding to take up a career in psychiatry he became a medical officer at the Bethlem Royal Hospital. Bethlem had been the chief centre of English psychiatry for a long time, and was the recognized route to a consulting practice. Stoddart ultimately became resident physician and medical superintendent of Bethlem, and at the time of the 1914–18 war he followed the example of his predecessors at Bethlem, Sir George Savage, Dr. Percy Smith, and Sir Maurice Craig, and left the hospital to devote himself to consulting practice in London.

By this time Stoddart was already a well-known psychiatrist. His textbook *Mind and its Disorders* appeared in 1908, ran through several editions, and maintained its position as one of the most popular introductions to the subject. He succeeded Dr. Percy Smith as physician and lecturer on mental diseases at St. Thomas's Hospital, and he was an examiner in psychological medicine for the University of London. He was vice-president of the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association in 1913.

The teachings of Freud had a considerable effect upon Stoddart's work and career. He adopted enthusiastically the principles and practice of the psycho-analytical school, and was an early and active member of the British Psycho-analytical Society. When the fourth edition of his textbook was produced in 1921 it was largely coloured by psycho-analytical points of view and by the modifications which they introduced into his treatment of the problems of psychiatry. This change was still more manifest in his Morison Lectures on "The New Psychiatry," published in 1915.

Dr. Edward Glover writes: The death of one who was in his time a recognized pioneer in two sciences lays some obligations on those who seek to pay tribute to his life and work. It is proper that the scientific achievements of W. H. B. Stoddart should be so recorded that a younger generation can recognize the part he played in the development of psychiatry and of psycho-analysis. But it is also important that they should know what manner of man he was. This is a task that presents no difficulty. Stoddart was a man of immense vitality, and lived with the same warmth and enthusiastic zest as he worked. He was a pioneer for the same reason that he was in his time an all-round athlete, a concert-singer of repute, a pianist and an amateur actor of distinction, an enthusiastic and discriminating collector of antiques, a Mason who had held office in the Grand Chapter of his craft, a clubman and diner-out, and a perfect host who could engage the interest and affection of children as easily as he could intrigue more grown-up and sober-minded guests with an after-dinner dissertation on higher mathematics. He was a pioneer because he could live with equal absorption in the present, the past, and the future. The old and the new alike fascinated him; and the psychologist who cannot direct his vision to the history as well as to the future of the race is nothing more than a hack. In short, Stoddart was both in the literal and figurative sense a man of stature.

That he was a man who could stand up and fight for his convictions, sacrificing much material advantage in the process, must have been obvious to those who followed his psycho-analytic career from its early days. But the extent of his sacrifices could be realized only by those who knew him intimately. For Stoddart had a quiet, observant, and often quizzical humour with which he could mask his deeper feelings and effectively turn aside those who sought to pry into them.

Despite this genial reserve, no one could mistake his qualities of the heart. His reputation for hospitality was one that will be remembered by all who had the privilege of enjoying it. To younger colleagues he was consistently encouraging and supporting; and his devotion to the causes he had at heart was entirely selfless. Moreover, behind his social façade, his family relations showed a sustained warmth and care which those who were permitted to enter his domestic circle could always envy and rarely surpass. This is no obituary panegyric. It is the final test of a man of stature that his private life should be as rich as his professional life is outstanding. Stoddart passed this searching test with flying colours.

HOWARD STEVENSON, M.B., F.R.C.S.I.

Mr. Howard Stevenson died in Belfast on March 16, as the result of injuries sustained in a traffic accident. The son of Mr. Alexander Stevenson, of Lisburn, he was born in 1877. He was an exhibitioner in the Methodist College and a scholar in Queen's College, Belfast. He graduated B.A. in 1897, and M.B., B.Ch., B.A.O. in 1900. He went on to take the F.R.C.S.I. in 1904. After holding house appointments in the Royal Victoria Hospital, Belfast, and the Royal National Hospital for Consumption, Ventnor, Howard Stevenson was elected an assistant surgeon to the Ulster Hospital for Women and Children in 1905, and to the Royal Victoria Hospital, Belfast, in 1911. He was also assistant to the professor of surgery in Queen's College. In later years he became president of the Northern Ireland branch of the B.M.A., and of the Ulster Medical Society. In 1938 he was returned unopposed as an M.P. for Queen's University in the Northern Ireland Parliament, and in 1945 became chairman of the Committee of Ways and Means and deputy speaker of the House of Commons. He held this position only for some few months, when he resigned because of failing eyesight, but he retained his seat in the House until 1949. He rendered valuable service as chairman of the Health Advisory Council for the Ministry of Health, and of the Select Committee on Health Services which sat in 1943 and 1944.

Howard Stevenson's contributions to surgical literature were characteristic of the man—brief, factual, and clearly expressed. He was an excellent teacher at the bedside, and had that flair for quick and accurate diagnosis which is born of long practice and "the experienced mind." As an operating surgeon he had a dexterity which was very much above the ordinary, and the gift of making a difficult procedure appear simple. He was a most devoted servant of his hospitals, counting no cost and grudging no time spent in the service of the sick. As a colleague he was generous and understanding, and beloved alike by his seniors, his equals, and his students. No one sought his

aid without obtaining it in full measure. He was incapable of intrigue, and quick to believe the best of everyone.

In his earlier years Howard Stevenson was an enthusiastic tennis player, and later a happy and carefree golfer. It was, perhaps, surprising that he entered Parliament, but in this sphere, and on the Senate of the University, he showed the same patience and single-minded devotion to the task he found at hand. He is survived by his widow, a daughter of the late Sir Robert Liddell, and by two sons, one of whom, Morris, is a surgical registrar in his father's hospital. His brothers, Gerald and Leslie, both served in the regular R.A.M.C.

Medical Notes in Parliament

MEDICAL BILL

In the House of Lords on April 18 Lord ADDISON moved the second reading of the Medical Bill.

He said that this Bill was important and entirely non-party. It attracted him personally because in three months' time it would be 59 years since his name was first entered on the *Medical Register*. The General Medical Council and others connected with matters dealt with in the Bill had considered the subject for many years and there had been careful negotiations concerning it between the different parties. He was assured by the President of the G.M.C. that the council welcomed the Bill and felt indebted to the Departments and other bodies for their co-operation in working out its provisions. The President had authorized him to say that the council unreservedly supported this measure.

The Bill had four main purposes. The first was to take measures to improve the standard of medical education and to secure better provision for instruction in the care of patients before a man or woman was finally admitted to full registration. Lord Addison said that at present if a man or a woman was registered he or she was at liberty to practise, to sign death certificates, and, generally speaking, to discharge all the responsibilities of a member of the profession. Their lordships would agree that whatever might be the profession in which they had been trained they really began to learn about it after they were nominally qualified. This was abundantly true of those who had to deal with sick human beings.

The Goodenough Year

It was therefore proposed in the Bill that, when a man or woman passed the final examination of any of the bodies competent to grant diplomas or degrees, he or she should be required to have not less than a year's practical experience of care of patients under adequate and proper direction in a hospital or other approved institution. When the House reached the committee stage of the Bill, points might be raised about the length of this interim period and about the character of the institutions in which it should be spent. Mr. Willink, when Minister of Health in 1942, had appointed a committee under Sir William Goodenough to inquire into the organization of medical schools, particularly in regard to facilities for clinical teaching and research. That committee had reported that witnesses before it, including representatives of medical students, had given enthusiastic support for the proposal that in future entry into independent medical practice should be preceded by a compulsory period of approved and responsible clinical practice under supervision. The Bill, therefore, proposed that there should be an interim period during which a person should if possible practise under supervision in some hospital or other approved institution.

Lord Addison recalled how he had to struggle against poverty for several months before he could take up an unpaid junior appointment. Such an appointment had often been a tax on those practitioners who had small means, because in those days there had not been sufficient house appointments to absorb all the men and women who qualified in a year. He was assured that at present there were more vacancies in house appointments in England, Wales, and Scotland than there were people becoming qualified or passing their final examinations each year. On paper there was no deficiency of posts. But it would be for the General Medical Council to consider what was meant by an approved institution. It was desirable that there should be a sufficient number of beds for a man to get practical experience. That problem would have to be dealt with carefully. As it might not be practicable to bring into force everywhere at one time the provision for this interim period of training, the Bill laid down that the General Medical Council should appoint the day on which this provision should come into operation. The same day might not be appropriate in every place. He understood that in Northern Ireland there was an excess of available posts, but that might not be so in other parts of the United Kingdom. The Bill therefore took power for the council to bring this scheme into operation when there were sufficient posts of a suitable kind to accommodate all the men and women who had passed their qualifying examination.

A year passed in dealing with patients under adequate supervision would be of immense advantage to the practitioners and their patients. In New South Wales and in South Africa such a scheme was in operation and the Bill provided for reciprocal arrangements between the United Kingdom and Commonwealth countries in regard to places where training was undertaken. He thought the provision would lead to great improvements in the standard of training. It was proposed that at the end of the period of training provisional registration would come to an end and men and women would be fully registered.

The Bill provided that the General Medical Council should be able to visit and inspect medical schools and examine their standards of training. At present all the council did was to send visitors and inspectors to examinations. It was proposed that the examiners should be entitled to visit medical schools. There should not be too many bodies with powers to inspect. Universities must acquaint themselves with the standard of training and equipment required. The University Grants Committee had the same authority. He hoped that the new power of inspection and visitation would be combined with the exercise of the same powers by these other authorities. He was assured that this would be the aim.

Constitution of the G.M.C.

Lord Addison said another part of the Bill dealt with the constitution of the General Medical Council. It had been represented for many years that the constitution of the council might be improved. The Bill would make the council larger. Instead of 39 members as at present the council would have 45 members. That was linked with the demand which had been vigorously expressed that since the council had power to strike a person off the *Register* there should be more members elected by medical men.

There were at present five members nominated by the Crown and seven elected members. The Universities and other bodies who had power to grant diplomas could each appoint one member. In all there were 27 of these members. In addition Parliament must now recognize the Royal College of Obstetricians and Gynaecologists, which would make the number of these representatives 28. The Bill proposed that the number of members elected by medical men themselves should be increased to nine—namely, six in England and Wales, two for Scotland, and one in Ireland. The Crown members were increased to eight. At present there was power to appoint one layman. Lord Nathan was at present the only layman on the council, but in view of the council's great variety of functions the Bill proposed that there should be power to appoint three.

A body of 39 was cumbrous in dealing with the trials of alleged offences, and a body of 45 was open to even greater objection. The Bill therefore proposed that there should be a specially appointed disciplinary committee which, apart from the chairman, would have only 19 members. Of these 19 members at least six should be appointed from the elected members of the council. That was a fair proportion and a great improvement upon the present procedure.

There was a further important provision in the Bill. At present when a medical man was struck off the *Register* he had no opportunity of appeal. The Bill provided for one. There would be general agreement that the proposal that this appeal should be to the Judicial Committee of the Privy Council was both practical and right. It would be the duty of the Lord Chancellor to approve certain rules which would be submitted to the Privy Council. It was also provided that an assessor should be appointed who would act under rules made by the Lord Chancellor.

Lord Addison said that finally it was hardly necessary to give reasons why the fee for full registration would be raised from five guineas to eleven guineas. The fee for interim provisional registration would remain at five guineas. A welcome minor proposal in the Bill was that the body instead of being the "General Council of Medical Education and Registration of the United Kingdom" would in future be known as the General Medical Council. It had been so known generally for many years and that would now be its statutory description. Lord Addison added that Clause 30 of the Bill provided with regard to the more important provisions on which rules should be made that these rules should be subject to annulment in pursuance of a resolution of either House of Parliament. It was possible that their lordships would discuss later the precise form of procedure to be adopted. He concluded by saying that the Bill was a matter of first-rate importance not only for the medical profession but for all who looked after the health of the people.

Lord LLEWELLIN said that before the war about 50% of the doctors who qualified went through a hospital before taking up their course. During the war about 90% worked in a hospital for about six months after qualification. He thought the recommendation of the Goodenough Committee that there should be a compulsory period of practical training was a good one and that at least twelve months was required for such practical experience. It might be that after further discussion the House would find that twelve months was perhaps a little rigid, but he recalled that both in the case of barristers and solicitors part of the preliminary training was spent in practical work under an experienced lawyer. He hoped that provision would be made, as the Goodenough Committee recommended, for these young men and women to have free board and lodging and be paid a full and appropriate and uniform salary.

He thought the elected element in the General Medical Council might well be larger than nine. Previously it had been 17% and it was raised now only to 19%. He was not sure whether the time had not yet come to give some representation to Wales. He felt, too, that the disciplinary provisions of the Bill needed careful scrutiny in committee. Erasure of a doctor's name from the *Medical Register* often spelt economic ruin and sometimes social ostracism. He welcomed the smaller Disciplinary Committee proposed, but would sooner see a panel composed of the President and six or even only four other persons. He welcomed Clause 15, which allowed the council to appoint as an assessor a barrister, advocate, or solicitor of not less than ten years' standing. There had no doubt been cases where no member of the council had known much about the laws of evidence. He welcomed the right of appeal, and thought that on balance the Judicial Committee of the Privy Council might be the right tribunal.

Increasing Efficiency

Lord HORDER said it was appropriate that the Bill should be introduced by a member of his own profession. He himself had severely criticized the Government during the last two or three years. He was not contrite. In some respects the practice of doctoring in this country had been mishandled by the Government. Now that the teething stage of the Act was over they found that the doctors were under control, and that, not only had the promised betterment in the standard of doctoring not arrived, but, in the judgment of many, that standard had deteriorated. Vast sums of money had been poured out for the health services, and as yet the country had not received an adequate return.

On this Bill, however, he was on the side of the Government. The first five clauses of the Bill should add considerably to the efficiency of doctoring in Great Britain. The Bill did not improve the conditions of doctoring, but it gave the doctors the best chances of being efficient. The assets of a good doctor were a fitting and cultivated personality, a thorough training in his profession, ability to cream off from science the best that science could offer in diagnosis and treatment, and, fourthly, a sense of responsibility. If any of these assets could be strengthened in the British doctor it was the fourth. The old apprentice system having died out, the young doctor went out into practice ill-fitted in respect of responsibility and judgment. The Bill could render assistance in that respect.

Lord Horder asked whether it was clear that the additional year which provisionally registered medical men and women had to put in for the sake of perfecting themselves as doctors was to be added to the present five or sometimes six of the ordinary curriculum. That should perhaps be safeguarded so that the curriculum was not modified to make this desirable twelve months a part of the five- or six-year period. He suggested that provisional registration should entitle the doctor to full responsibility and privileges within the terms of his appointment. Whether he was legally entitled to prescribe dangerous drugs should be made clear. Could he sign death certificates? Could he certify as to insanity? These were points which could be established in the final drafting of the Bill.

Should the remuneration of the provisionally registered doctor be the same as present rates for house appointments? It should be at least at the level of those rates and not below them. When did the remuneration of the provisionally registered but qualified medical man begin? They could not have provisionally registered men and women sitting about unremunerated. Lord Addison thought he could reasonably assure the House that a sufficiency of hospital appointments was available for provisionally registered doctors. Lord Horder was not certain of this. The question was not only how many institutions and hospitals could be approved. It was also a question of a sufficiency of clinical material. He considered that any approved hospital should be able to provide a minimum of 20 beds or an equivalent number of out-patients before it was approved. Supposing it was found that there were not sufficient of these posts, would it not be a good thing that some of these people should be accredited to recognized approved groups of medical practitioners?

If the objection was made, "How can we decide to which group of practices we can safely attach these people?" he gave as a tentative answer, "The Government has already approved health centres." That had been an attraction of some magnitude to the doctors before they signed on the dotted line. Two years after the appointed day the health centres did not exist, but the proposal might be an incentive to get on with them so as to provide some place in which these provisionally registered young men and women could work. Idolatry of the hospital had gone rather far. These young men and women were not going to be faced with hospital practice. Ultimately they would be faced with domiciliary practice. Should they become keen on major surgery and specialist forms of practice, Parliament would defeat its object, which was to make them more efficient doctors, not to feed their already avid desire to leave general practice and become specialists. Perhaps the Bill could be drafted so that a health centre might be regarded as an "approved institution."

With regard to specialties such as diseases of children, diseases of the eye, diseases of the skin, and obstetric practice he asked whether experience of these was classed as medical or surgical. In the actual wording of the Bill the medical and surgical spheres could be expanded to include these special subjects. Special hospitals where these subjects were taught would be an admirable field in which to place a number of the provisionally registered men and women. Other matters which must crop up in implementing this Bill would be dealt with by regulation. He pleaded that before they were issued such regulations should be discussed with members of the medical profession. The profession had been promised that in another connexion, but the promise had not been fulfilled. It would be lamentable if any administrator attempted to carry out this

admirable principle without free consultation with those who knew.

Lord Horder agreed with Lord Llewellin that an increase of the directly elected representatives on the General Medical Council from 7 to 9 was insufficient; 12 would be better. He had doubted whether appeal to the Judicial Committee of the Privy Council was as good as the right of appeal to the High Court, which allowed a further appeal to the House of Lords. However, he had received an assurance from Lord Symon that it was satisfactory that the appeal should be to the Judicial Committee. He was not clear whether the Penal Cases Committee of the General Medical Council would still function. If that Committee, which was a sifting Committee, was to continue, he hoped it would have a different personnel from the Disciplinary Committee which had a final say on matters brought before it.

On Clauses 16 and 17, he understood that the General Medical Council, although not bound to do so under the Act of 1858, did in fact arrange for "due inquiry" when a doctor had been convicted of felony or misdemeanour. As he read the present Bill, it would be possible for the council to erase a doctor's name in these circumstances without a formal inquiry. The defence bodies of the profession, who handled 90% of the cases on the doctors' behalf, considered it undesirable that there should be no formal inquiry. They contended that Section 20 should be so amended as to provide for this due inquiry in all cases.

Status of the General Practitioner

Lord AMULREE said the House must be pleased that a reformation was taking place in the functions and constitution of the General Medical Council. On Clause 2 he asked whether the Government could give some reason why it was impossible for students to spend part of their time with an approved general practitioner or group of general practitioners. If the qualified but not yet registered practitioners could not sign death certificates nor prescribe dangerous drugs, there must be some kind of house-physician or house-surgeon working above them. That would mean that after twelve months' supervised training they would need to take further jobs as house officers. If they spent part of the time with practitioners, even though that was only experimental or tried out in one or two cases, it would improve the status of the general practitioner.

There was too much emphasis on the importance of the work done by hospitals. At present a great proportion of students wished to become consultants, and not until they had tried once or twice to become specialists did they reluctantly go into practice. If training under a general practitioner were made an important part of their training it would draw more people to that side of the profession to the advantage of the whole profession.

He welcomed the fact that a practitioner who had been struck off by the General Medical Council would have a right of appeal, but he would like the G.M.C. to have power to give some punishment other than striking off the register. He did not see in the Bill any mention of the power of suspension. Perhaps the council could arrange this itself, but he wondered if the forms of punishment could be laid down in the Bill as they were in other Acts of Parliament. He also wondered whether the words "guilty of infamous conduct in any professional respect" could be changed. He suggested something simpler, such as "professional misconduct."

Lord WEBB-JOHNSON thought it unfortunate that Clauses 1 and 2 were drawn so rigidly as to bind the General Medical Council in certain respects. A minimum period of twelve months was laid down, although twelve months might prove to be impracticable. If the council were not so rigidly bound the reforms which all desired might be introduced at an earlier date. In Clause 3 (*c*) the G.M.C. was empowered in the case of a practitioner or qualified man in the Commonwealth or from a foreign country to accept that he had "otherwise acquired such experience." The same provision might well be applied to their own countrymen.

He supported Lord Horder's view that there should be a sifting committee independent of the tribunal. He was disturbed by the fact that the decision of this tribunal could be made by the casting vote of the chairman. It would be wiser to say in the Bill that a conviction carrying such terrible punishment must depend on a clearly stated majority. In practice there was a verdict under the disciplinary procedure, either of guilty or that the charge was not proven. Now that witnesses could be put on oath it was reasonable that a man who was completely exonerated should be declared not guilty rather than that the charge was not proven.

He agreed with Lord Amulree's suggestion that there should be power to give some sentence other than erasure from the *Register*. He was anxious lest the cost of appeal to the Judicial Committee of the Privy Council should be prohibitive. As this was a Medical Bill, the House should consider whether any important point might be included outside the provisions already drafted. One such point was that, while medical training was made more exacting and while the public was more dependent on scientific guidance in time of illness, the maximum penalty for a man masquerading as a medical practitioner was only £20.

Disciplinary Committee

The LORD CHANCELLOR said he proposed to talk only about the legal provisions and the Disciplinary Committee. He regarded a committee of 19 dealing with disciplinary questions as on the large side, and would much rather have a committee of nine. However, the point had been discussed with the General Medical Council, and 19 had been selected because the council was anxious that all interests should be represented. The House would consider the matter on the Committee stage, and he would personally welcome membership on the Committee being made only nine.

Lord Jowitt said that he was mainly responsible for the appeal to the Privy Council. He had seen the doctors about this matter, and they all thought it undesirable that there should be three appeals, one to the High Court in England, one to the Court of Session in Scotland, and another to the appropriate tribunal in Northern Ireland. The G.M.C. and the Disciplinary Committee would in practice always meet in London. It was difficult to decide what was a Scottish case and what was an English case. The Privy Council Court had upon it the most eminent judges from Scotland, England, and Northern Ireland.

The idea that an appeal to the Privy Council was necessarily expensive was wrong. The great majority of doctors belonged to a medical defence union which saw them through their difficulties. Where that was not so he felt sure that they would be able to avoid undue expense falling on a person who desired to get his case heard. Clause 16 had not been fully comprehended. Ever since the Medical Act of 1858 the law had been that wherever there had been a conviction the General Medical Council took that as a fact. They had then to consider whether that conviction was of such a grave character that the doctor concerned should be struck off the *Register*. He felt that that was reasonable. If a doctor were convicted of murder, reprieved, and sentenced to penal servitude for life, it would be intolerable that the Disciplinary Committee should have to try again the question whether he had or had not committed a murder.

In the case of a lesser crime the Disciplinary Committee had under the Act of 1858 to accept the fact that the man had been guilty of that crime. They must then consider whether the crime was of such gravity as to make it necessary to strike his name off the *Register*. Under Section 29 of the Act of 1858 in the case of adultery they could remove a name from the *Register* only after due inquiry. They had to inquire whether the man had committed adultery and whether the person with whom he committed adultery was in such a special relationship to him as a doctor that there was the element of professional misconduct. If the Committee did not accept the fact that the practitioner had been found by the appropriate Court to be guilty of adultery they were virtually sitting as a Court of Appeal from the Divorce Division, which was the last thing they wished to do or were fit to do.

On the point whether there should be a power to reinstate names, as proposed in Clause 19, the council at present only had power to strike names off the *Register*. In practice from time to time it postponed judgment. Clause 19 provided that, where the name of a person had been erased, the Disciplinary Committee might at any time direct the registrar to restore that

name to the *Register*. The Disciplinary Committee would strike a member off and thereafter he could apply to be restored to the *Register*. Whether it would be better to state that there should be power of postponement for a time was a matter the House would consider in committee.

Lord HADEN-GUEST understood that it had been the practice in the past for the members of the General Medical Council to form a penal cases committee. If that was to continue it had been suggested that anyone who served on that sifting committee should be precluded from being a member of the Disciplinary Committee. This was a matter of substance and one which might necessitate an amendment to Clause 13.

With regard to the twelve months' training to be undertaken by doctors after they had finished their ordinary studies, it would be interesting to have information about how many now did six months' training and how many did a year. The Services strongly preferred men with a year's experience in hospital. He thought there would be enough places to provide appointments for all who required them. If there were to be groups formed of doctors working in teams—and he knew that some were in process of formation—it was desirable that young doctors should be, as it were, apprenticed to such a group as an alternative to going into some institution. The Bill would improve the standard of medical education and medical practice, and the improvement would be brought about by regulations which could be annulled if they did not meet the wishes of Parliament. The safety of the public was therefore completely protected.

Lay Members

Lord HACKING said the Bill was not forced upon an unwilling profession but in the main was a measure agreed between the Government and the existing General Medical Council. He himself had occupied from 1931 to 1946 the post of lay member of the council which was now occupied by Lord Nathan. Even before he retired the reorganization of the functions and powers of the council had been under negotiation. The hand which had guided those discussions was that of the late president of the council, Sir Herbert Eason. For many years Sir Herbert had inspired his colleagues with enthusiasm for the general welfare and integrity of the profession. He had been the chief builder of this Bill. He paid tribute also to the registrar of the council, Mr. Michael Heseltine, and to his assistant, Miss Taylor.

He noted that it took a page of the Bill to announce the number of members who were to sit on the new council. He asked Lord Shepherd to say how many members were in fact to be upon the new council. Lord Addison had said 45, but Lord Llewellin said 47. He wondered whether the increase of lay members of the council from one to three was necessary. The full council would deal with medical standards for registration, with training and experience in hospitals, and with publication of the *British Pharmacopoeia*. Laymen could make little contribution to the deliberations when these subjects were before the council.

He did not think that a committee of 19, with a quorum of nine, was too large a membership of the Disciplinary Committee. He had sat for many years as a member of the General Medical Council when the whole body of 39 dealt with disciplinary cases. So far as he could tell, justice had always been done. He thought it very sound that Clause 14 would empower the Disciplinary Committee to administer oaths and to enforce attendance of witnesses and production of documents. The council had suffered in the past from the fact that it could not put a witness on oath and could not compel attendance of witnesses. Justice would be performed with greater certainty under the proposals in the Bill. The right of appeal was correct in theory, and he hoped that in practice it would not be abused. Since there was only one punishment which the Disciplinary Committee could impose, it followed that the sentence could not be increased on appeal, so that a doctor had nothing to lose by appealing. At the moment, however, he could think of no better method than that adopted in the Bill.

Lord STAMP in a maiden speech said he wished to raise a matter which caused anxiety to authorities concerned, particularly those of the University of London. It concerned the power to be given to the General Medical Council to visit and report on medical schools. Medical schools of the University of London were visited regularly by the Senate of the University, and the University Grants Committee proposed to visit them once every five years. The proposed visits by representatives of the General Medical Council would lead to overlapping and inconvenience due to multiple inspections. He hoped some arrangement could be made whereby the representatives of the interested groups could visit the schools as a single body.

Reply to the Debate

Replying to the debate, Lord SHEPHERD said the points raised by Lord Stamp would be considered by Mr. Bevan. There was something to be said for looking into the danger which might arise from too frequent inspections. Lord Webb-Johnson had said that Clauses 1 and 2 were too rigidly drawn. Lord Shepherd said the Government would look into the matter, but that these two clauses were in accord with the report of the Goodenough Committee and had received the approval of the General Medical Council. Lord Webb-Johnson had also objected to a casting vote by the chairman of the Disciplinary Committee being used to pass sentence on a medical man. Lord Shepherd pointed out that this had always been the practice of the General Medical Council and no doubts had previously been raised about it. He promised to look into the point and to communicate with Lord Webb-Johnson before the committee stage.

In reply to Lord Hacking Lord Shepherd said the present strength of the council was 39 and the Bill proposed 45. That figure would be subject to any amendment on which the House might decide during the committee stage. On the position of laymen upon the council, Lord Shepherd said the council was not elected solely in the interests of the medical profession. It was a public institution, and its job was to see that justice was done for the public. The Government believed that in suggesting two more lay members it had not gone too far.

Lord Llewellin had wondered whether the Government had been too rigid in fixing a period of twelve months for interns. The Government had considered that matter fully and realized that safeguards would be needed. The Privy Council before naming the appointed day would insist that before a man or a woman could become an intern there must be the necessary room and opportunity. It was the intention of the Government that these interns should occupy house posts and that the rate for the job should be paid. He could not fix a rate. That rate must be decided elsewhere, but so far as the Government and the G.M.C. were concerned a suitable salary would be assured.

In regard to the arrangements in the Irish Republic, he pointed out that the medical profession in Ireland came somewhat under the jurisdiction of the General Medical Council in this country. Medically the two countries worked under an agreement reached in 1927 between the Governments of Great Britain and the Irish Free State. Therefore, it could be accepted that when the Government brought forward measures such as the Bill there had been previous consultation and agreement. When a student received a diploma in Ireland following on examination and was given temporary registration, the fee of five guineas would be paid in Ireland. The student who became provisionally registered in this country would pay his five guineas in Britain. Payment of the six-guinea fee depended upon where registration took place. If an Irish student paid his five guineas in Ireland, then came here as an intern and finally became registered in this country, he would pay six guineas in this country. Otherwise if he became registered in Ireland, he would presumably pay the six guineas there.

He did not propose to say much about the numbers to be elected to the council, because proposals would be made on the committee stage for a larger number. The General Medical Council was not merely a representative body of medical men, but represented training bodies like the universities and hospitals. It was important that the representative character of the council on the practising side should not be unduly great. The figures might be discussed in greater detail before the committee stage.

Lord Shepherd went on to agree with Lord Llewellin's view that under this Bill a member of the House of Commons could be a member of the council but must not draw fees or expenses. Under the Bill, if a peer were appointed to the General Medical Council he would not be barred from receiving fees and expenses. He could not state what period would be necessary before the appointed day in all its aspects could be fixed. An appointed day for the Disciplinary Committee could come into operation almost forthwith. When it came to an appointed day for the interns, many problems had to be solved, including the provision of buildings in which they would work, the residences in which they would live, and the question of notice to the present students. The appointed day would not merely be variable between one subject and another, but when necessary would be variable in one and the same subject. The appointed day for an intern in Edinburgh might be earlier than for an intern in London. This provision would become compulsory as and when circumstances permitted. Any move would be subject to the decision of the Privy Council acting on the recommendation of the General Medical Council.

Lord Shepherd said he could not give a specific reply to Lord Horder's inquiry whether an intern would be able to issue death certificates or prescribe dangerous drugs. He referred to subsection (3) of Clause 4, which contemplated that an intern would be registered only in so far as certain functions could be performed and no further. Paragraphs (*a*), (*b*), and (*c*) set out the lengths to which an intern would have responsibility. In regard to approved hospitals the House need not fear that hospitals and institutions secured for purposes of intern training would be other than suitable and practical. They had to be chosen by universities and other bodies responsible for granting diplomas.

The Bill was then read a second time without a division and was committed to a Committee of the whole House.

Hospital Administrative Staffs

Mr. PICKTHORN, on April 20, asked what were the numbers and the costs of the clerical and administrative staffs of hospitals for each of the last four years.

Mr. BEVAN said the figures were available for only the last two years. On December 31, 1948, when staff was still being built up and much of the administrative work was being done by local authorities on an agency basis, the total clerical and administrative staff of hospitals was 20,933. On December 31, 1949, when the agency arrangements had been superseded, the figure was 25,654. Corresponding figures of cost were not available, but the cost of administration in the financial year 1949–50 was estimated at £3,500,000 and in the year 1950–1 at £4,500,000.

The Services

DEATHS IN THE SERVICES

Lieutenant-Colonel FERDINAND SIMEON LE QUESNE, who won the V.C. for conspicuous bravery in 1889, died at Bristol on April 14, at the age of 86. The third son of the late Lieutenant-Colonel Giffard N. Le Quesne, Royal Jersey Artillery, Ferdinand Le Quesne was born in Jersey on Christmas Day, 1863. He was educated in the Channel Islands and received his medical training at King's College Hospital. He took the L.S.A. in 1885 and the conjoint diploma a year later. Soon afterwards he joined the Army Medical Service and in 1889 went overseas to serve with the Burma Expedition. It was during an attack on the village of Tartan in Upper Burma, when he was with a column of the Chin Field Force, that Le Quesne earned the award of the Victoria Cross. In spite of direct fire from the enemy he went to the aid of a wounded officer and, displaying perfect coolness and self-possession, remained with him for ten minutes to dress his wounds. He then turned his attention to other casualties and while helping another officer he was himself severely wounded. In addition to the V.C. Le Quesne received the medal and clasp for this campaign and was mentioned in dispatches. He saw further service the next year with the Chin Lushai Field Force and in 1891 with the Wuntho Field Force. He was promoted to the rank of major in 1898. Le Quesne served in the South African War, gaining the Queen's Medal with the Cape Colony 1901 and 1902 clasps, and he remained in the service after the war, retiring in 1918 with the rank of lieutenant-colonel.

Universities and Colleges

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The nineteenth John Mallet Purser Lecture will be delivered by Professor E. C. Dodds, F.R.S., in the Dixon Hall of the college, on Thursday, May 4, at 4.30 p.m. His subject is "Synthetic Oestrogens in Treatment, with Special Reference to Malignant Disease."

UNIVERSITY OF DURHAM

Dr. J. C. White will deliver the seventh Rutherford Morison Lecture at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Tuesday, May 9, at 5.15 p.m. His subject is "Surgical Relief of Intractable Pain."

UNIVERSITY OF LONDON

Dr. H. McIlwain will deliver two lectures on "Brain Metabolism and Activity" at the Institute of Psychiatry, Maudsley Hospital, Denmark Hill, London, S.E., on May 1 and 8, at 4.30 p.m.

A series of eight lectures on "Genetics and Biochemistry" will be delivered by Professor J. B. S. Haldane, F.R.S., at University College (Physiology Theatre), Gower Street, London, W.C., on May 1, 8, 15, and 22 and June 5, 12, 19, and 26, at 4.45 p.m.

Professor Hamilton Hartridge, F.R.S., will deliver a lecture on "Some Recent Advances in the Physiology of Vision" at University College (Physiology Theatre), Gower Street, W.C., on May 2, at 5.15 p.m.

The time of Professor Perrin H. Long's lecture, announced in this column in the *Journal* of April 22 (p. 966), has been changed to 5 p.m.

EPIDEMIOLOGICAL NOTES

Dysentery

In the last week of the first quarter of the year, the week ending April 1, there were 461 notifications of dysentery, the highest weekly figure recorded in the current year. The total number of notifications for the quarter was 3,938 compared with 5,163 in the corresponding period of the peak year 1945. There is therefore every indication of the present year becoming comparable to 1945 as regards the high incidence of dysentery.

Most of the cases are of Sonne dysentery, and the majority of notifications have come from the north. The counties of Durham, Lancashire, Northumberland, and the West Riding have been responsible for 67.7% of the total notifications in the quarter under review. This continues the trend noted recently in this column (April 8, p. 582). The county boroughs in these areas with the highest figures were Sheffield (566), Leeds (365), Newcastle (183), Manchester (169), Bradford (127), and South Shields (87).

At the other end of the scale the following towns in the same areas recorded no notifications at all—Barrow-in-Furness, Blackpool, Bootle, Bury, Rochdale, Warrington, and Halifax. The following registered one case each: Darlington, Burnley, Oldham, Tynemouth, and York.

County areas with figures next highest to those mentioned above were Gloucester, Stafford, and Glamorgan, which were together responsible for 9.7% of the total notifications for the quarter. In the remaining counties in England and Wales the incidence for the period referred to was satisfactorily low, though the possibility of spread of the disease over the next few weeks cannot be disregarded.

Cholera in Calcutta

Cholera has assumed epidemic proportions in Calcutta and is especially affecting large groups of refugees living in overcrowded and insanitary areas. According to recent press reports there have been over 100 notifications daily and as many as 272 deaths in one week, the highest mortality since the disastrous epidemic of 13 years ago. A large-scale inoculation programme has been undertaken, but so far it has only been possible to protect about 250,000 out of the 4,000,000 population of Calcutta. Plans are in hand for inoculating up to 30,000 individuals daily, and it is hoped by this means to

bring the epidemic under control. One of the major difficulties is the shortage of the filtered water supply, as a result of which many people are being driven to taking the water they need from street hydrants or direct from the rivers.

Sickness During the First Quarter

The number of new claims to sickness benefit made under the National Insurance Act during the first quarter of 1950 were fewer than during the first quarter of 1949, some 514,000 compared with 522,900. In the southern section of the country the number of new claims made during March was substantially above the corresponding figures for the preceding year, while in the north they were considerably below the figures for March, 1949.

New Claims to Sickness Benefit in 1950 Expressed as a Percentage of the New Claims in the Corresponding Period of 1949

Standard Regions	January	February	March
Northern	132	130	76
East and West Ridings	96	97	82
North Western	96	88	96
North Midlands	97	107	88
Midlands	97	109	95
Eastern	91	95	90
London and Middlesex	90	85	113
Remainder of South Eastern	90	91	110
Southern	97	106	112
South Western	98	105	107
Wales	102	118	123
England and Wales	98	99	98

Discussion of Table

In *England and Wales* infectious diseases were less prevalent during the week. There were falls in the notifications of measles 820, scarlet fever 433, whooping-cough 361, acute pneumonia 243, and dysentery 98.

A decrease in the incidence of scarlet fever was reported throughout the country; the largest falls were Lancashire 53 and Middlesex 42. The largest decreases in the notifications of measles were Lancashire 141, Staffordshire 151, Warwickshire 123, and Durham 123.

The largest variation in the local trends of diphtheria was an increase of 4 in the notifications in Lancashire. The largest decrease in the notifications of whooping-cough was Yorkshire West Riding 91.

The chief centres of dysentery were Yorkshire West Riding 114 (Sheffield C.B. 57, Leeds C.B. 17, Bradford C.B. 14); Durham 75 (Blaydon U.D. 31, Stanley U.D. 20, Whickham U.D. 8, South Shields C.B. 8); Lancashire 65 (Manchester C.B. 28, Chadderton U.D. 13, Middleton M.B. 9); Northumberland 17 (Newcastle-upon-Tyne C.B. 10); Middlesex 13 (Wembley M.B. 11); and London 11. The largest outbreak of food-poisoning was in Yorkshire West Riding, Bradford C.B., where 41 cases were notified.

In *Scotland* a large fall in the incidence of infectious diseases was reported, with decreases in the notifications of measles 89, whooping-cough 86, scarlet fever 68, and dysentery 22. Only 11 cases of diphtheria were notified, and this is the smallest weekly total recorded. The chief centres of dysentery were Glasgow 28, Edinburgh 12, Lanark county 12, Dundee 11, and Perth 7.

In *Eire* a decline of 35 in the notifications of scarlet fever was the only large variation in the trends of infectious diseases. Increases of 21 in the notifications of scarlet fever and of 11 for whooping-cough were reported from Dublin C.B.

In *Northern Ireland* there was a rise of 64 in the notifications of measles and a fall of 20 for whooping-cough. The largest increases in the incidence of measles were Belfast C.B. 51 and Antrim county 24.

Week Ending April 15

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,385, whooping-cough 2,457, diphtheria 58, measles 7,888, acute pneumonia 722, dysentery 303, paratyphoid fever 4, typhoid fever 5. The deaths from influenza in the great towns numbered 56.

No. 14

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 8.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1950 (a)	1950 (b)	1950 (c)	1950 (d)	1950 (e)	1949 (Corresponding Week) (a)	1949 (b)	1949 (c)	1949 (d)	1949 (e)
Meningococcal infection	26	2	9	2	4	30	5	16	4	2
Deaths		3	—				—	1		
Diphtheria	65	7	11	2	1	105	16	28	3	4
Deaths	—	—	—	—	—	1	—	—	—	—
Dysentery	363	11	78	—	2	62	5	23	3	—
Deaths					—					—
Encephalitis, acute	3	—	—	—	—	—	—	—	1	—
Deaths		—					—			
Erysipelas			24	6	6			25	4	4
Deaths										
Infective enteritis or diarrhoea under 2 years				10					51	
Deaths	21		1	—	—	30		2	—	1
Measles*	5,487	91	196	90	424	15,819	1487	396	154	151
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	28	3	10		1	29	5	12		1
Deaths										
Paratyphoid fever	3	—	1(A)		—	2	—	1(B)	—	—
			2(B)							
Deaths	—		—		—	—	—	—	—	—
Pneumonia, influenzal	698	24	9	—	13	1,481	58	21	10	12
Deaths (from influenza)‡	117	22	1	6	1	274	20	6	1	—
Pneumonia, primary	231	37	162	¶	6	333	45	210	8	14
Deaths				10						
Poliomyelitis, acute	19	2	2	3	1	15	2	—	—	—
Deaths§	3	—		—		2	—			
Puerperal fever		—	3				—	9		
Deaths										
Puerperal pyrexia‖	81	6	4		—	110	6	5	1	—
Deaths							—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,316	103	152	45	104	1,257	87	186	80	43
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—		—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	1	—	2	1	—	1	—	1	1	—
Deaths	—	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough	2,127	102	276	69	60	2,998	247	276	121	64
Deaths	3	—	—	—	1	13	2	1	1	—
Deaths (0–1 year)	281	45	33	7	13	280	37	45	21	8
Deaths (excluding stillbirths)	5,322	797	536	172	137	6,101	814	644	211	158
Annual death rate (per 1,000 persons living)			10·8					12·9	13·1	
Live births	6,845	1110	823	317	239	7,927	1272	1028	441	258
Annual rate per 1,000 persons living			16·5					20·6	27·3	
Stillbirths	161	20	35			205	29	23		
Rate per 1,000 total births (including stillborn)			41					22		

* Measles is not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

¶ Primary pneumonia no longer notifiable in Eire.

Medical News

London Association for Hospital Services

Dr. C. E. Lakin and Sir Eardley Holland have been nominated as representatives of the Royal College of Physicians of London and the Royal College of Obstetricians and Gynaecologists respectively on the council of the London Association for Hospital Services.

Central Midwives Board

Mr. Arnold Walker has been re-elected chairman and Mr. J. P. Hedley vice-chairman of the Central Midwives Board for the ensuing year.

New Journal of Vascular Diseases

The first number dated February, 1950, of a new journal, *Angiology*, has been published under the editorship of Dr. Saul S. Samuels, of New York, by the Williams and Wilkins Company, Mount Royal and Guilford Avenues, Baltimore, 2, Maryland, U.S.A. It will include papers mainly on peripheral vascular diseases as well as on more general subjects, such as hypertension and blood-clotting. Six numbers a year will be issued for eight dollars, and information about subscriptions should be obtained from the publishers. The editorial board has established the Angiology Research Foundation to receive income from the periodical and from any endowments. These funds will be used to encourage research into vascular disease.

New Journal of Proctology

The International Academy of Proctology, of New York, has started to publish a quarterly journal entitled the *American Journal of Proctology* under the editorship of Dr. Alfred J. Cantor. The first number is dated March, 1950, and includes articles on duodeno-colic fistula, rectal polyps, and sigmoidoscopy, as well as some abstracts and news notes. The annual subscription is $2.50, and particulars may be obtained from the business office of the journal at 1819, Broadway, New York 23, N.Y., U.S.A.

New Food Journal

The Society of Chemical Industry has started publication of a new periodical entitled the *Journal of the Science of Food and Agriculture* under the editorship of Mr. F. Clark, B.Sc. It is obtainable from the society at 56, Victoria Street, London, S.W.1, for 30s. a year (single copies 3s.). The first number, dated January, 1950, contains messages of welcome from the Ministers of Agriculture and Food and the president of the society, Mr. Stanley Robson, M.Sc. Viscount Bruce of Melbourne discusses "The World Food Situation and the Work of the Food and Agriculture Organization," and the journal includes articles on analytical data of some common fruits, the vitamin-C content of cabbage, improving the keeping quality of bread, component fatty acids of elephant seal oil, the combination of sulphur dioxide with concentrated orange juice, and oxidation of the fat of dehydrated herrings.

German Periodical

The *Münchener medizinische Wochenschrift* has reappeared after a lapse of more than five years. In October, 1944, this well-known German weekly, with several others, suspended publication and was represented by a single journal, the *Medizinische Zeitschrift*. The *Münchener*, now in its ninety-second year, is edited by Professor G. Landes and Dr. H. Spatz, and published by J. F. Lehmann.

Wills

Sir Herbert Lightfoot Eason, formerly president of the General Medical Council, left £20,361. Dr. John Alfred Waring, of Nottingham, left £18,769; Dr. Samuel Littlewood, of Mansfield, Notts., £48,176; Dr. George Frank Dickinson, of Leamington Spa, £35,111; Dr. John Gilbert Heathcote, of Sheffield, £6,228; and Dr. Alexander Robertson Forrest-Hay, of Birmingham, £10,984.

COMING EVENTS

Maida Vale Hospital for Nervous Diseases

A series of clinical neurological demonstrations began at the Maida Vale Hospital for Nervous Diseases Medical School on April 21 and will be continued on Fridays, at 5 p.m., until July 7.

Lebanon Hospital for Mental Diseases

The 51st annual meeting of the Lebanon Hospital for Mental Diseases will be held at the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, London, W., to-day (Friday, April 28), at 3 p.m., when Professor Alexander Kennedy, professor of psychological medicine in the University of Durham, will be one of the speakers.

Care of the Aged

A meeting to discuss "Some Medical Aspects of the Care of the Aged" will be held in the Concert Hall of Hope Hospital, Eccles Old Road, Salford, on Thursday, May 4, at 5 p.m. The object of the meeting is to enable medical staffs of local hospitals, members of the regional hospital board, and members of the hospital management committee for the Salford Group, and others interested in this field of work, to discuss together what can be done for the care of the aged in home and hospital. An informal conference on the "Co-operation of Home and Hospital in the Care of the Aged" will be held in the Council Chamber of the Salford Town Hall, Bexley Square, Salford, 3, on Friday, May 5, at 2.30 p.m. The speakers, who will also address the previous meeting, include Dr. J. M. Greenwood, Dr. Marjorie Warren, and Dr. E. B. Brooke.

Association of Surgeons of Great Britain and Ireland

The Annual Meeting will be held on May 4–6. The President and Council of the Royal College of Surgeons will hold a reception at 9 p.m. on May 3. On May 4 a discussion on "Gravitational Ulcers of the Leg" will be opened by Professor M. Boyd. On May 5 there will be a symposium by Professor F. H. Bentley and others on "The Gastric Blood Vessels." A discussion on "Anticoagulants in Surgery" will then be opened by Professor R. M. Janes (Toronto). On May 6 Professor Charles Wells will open a discussion on "The Alimentary Physiology After Surgical Treatment for Simple Peptic Ulcer." Operating sessions and clinical demonstrations will also be arranged.

Edinburgh Postgraduate Lectures

In connexion with the postgraduate courses in medicine and surgery a series of open lectures on subjects of wide biological interest has been arranged by the Edinburgh Postgraduate Board for Medicine and began on April 18, when Professor Hakon Rasmussen, professor of medicine in the University of Bergen, spoke on "Oxygen Therapy." On April 25 Dr. E. G. Glover discussed "Psychotherapy in General." The remaining lectures will be given on May 5, 16, and 30 and June 13 and 20, and details of these will appear in the "Societies and Lectures" column of the *Journal* week by week. The lectures are given in the anatomy lecture theatre, University New Buildings, Edinburgh, and are open to all students and graduates.

Almroth Wright Lectures

A course of six Almroth Wright Lectures will be given in the lecture theatre of the Wright-Fleming Institute of Microbiology, St. Mary's Hospital Medical School, Paddington, W., on May 8, 16, 22, and 30 and June 6 and 13, at 5 p.m. Details will be published in the "Societies and Lectures" column of the *Journal* week by week. The lectures are open to all members of the medical profession and to all students in medical schools without fee.

London School of Hygiene and Tropical Medicine

The annual meeting of the Court of Governors of the London School of Hygiene and Tropical Medicine will be held at the school (Keppel Street, Gower Street, W.C.) on Wednesday, May 10, at 4 p.m.

Christian Medical Fellowship

A week-end conference will be held on May 12–15 at Bournemouth by the Christian Medical Fellowship, with which is combined the Medical Prayer Union. Particulars may be obtained from Mr. H. Morgan Williams, 4, Cambridge Road, Bournemouth.

Rehabilitation

Dr. Henry H. Kessler, president of the International Society for the Welfare of Cripples, will give an address and show a film at the Royal Empire Society, Northumberland Avenue, London, W.C.2, at 5 p.m., on Tuesday, May 16. Those wishing to attend should write to the general secretary, the British Council for Rehabilitation, 32, Shaftesbury Avenue, London, W.1.

Royal College of Obstetricians and Gynaecologists

The biennial Scholarship (Sterility) Lecture of the Royal College of Obstetricians and Gynaecologists will be delivered at the college, 58, Queen Anne Street, London, W., by Mr. Linton M. Snaith on Friday, May 19, at 5 p.m. His subject is "Habitual Abortion." Admission is by ticket only, obtainable from the secretary of the college. As accommodation is limited, those who find themselves unable to use tickets issued to them are asked to return them before the lecture.

Congress on Allergy

The first European Congress on Allergy will be held at the Broussais Hospital, Paris, on May 31 and June 1, with Professor Pasteur Vallery-Radot in the chair. The honorary chairman will be Sir Henry Dale, O.M., F.R.S. Further information can be obtained from Dr. Blamoutier, 5, rue de Luynes, Paris, 7e.

Geriatrics in Spain

The Spanish Geriatric Society will hold the first National Congress on Geriatrics on June 15–18. Full particulars may be obtained from the secretary, Dr. Mariano Pañelia Casas, Via Layetana, 31, Casa del Médico, Barcelona, Spain.

SOCIETIES AND LECTURES

Friday

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL, Maida Vale, London, W.—April 28, 5 p.m., clinical neurological demonstration, by Dr. P. H. Sandifer.

Monday

EDINBURGH UNIVERSITY.—At Physiology Lecture Theatre, University New Buildings, Teviot Place, May 1, 5 p.m., *"The Mechanical View of Life,"* by Douglas Guthrie.

INSTITUTE OF PSYCHIATRY (University of London), Denmark Hill, London, S.E.—May 1, 4.30 p.m., *"Brain Metabolism and Activity"* (Part I), by Dr. H. McIlwain.

UNIVERSITY COLLEGE (Physiology Theatre), Gower Street, London, W.C.—May 1, 4.45 p.m., *"Genetics and Biochemistry,"* by Professor J. B. S. Haldane, F.R.S.

Tuesday

INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—May 2, 5 p.m., *"Psoriasiform Eruptions,"* by Dr. F. R. Bettley.

ROYAL EYE HOSPITAL (KING'S COLLEGE HOSPITAL GROUP), St. George's Circus, London, S.E.—May 2, 5 p.m., *"Science and Art of Refraction,"* by Dr. T. H. Whittington.

UNIVERSITY COLLEGE (Physiology Theatre), Gower Street, London, W.C.—May 2, 5.15 p.m., *"Some Recent Advances in the Physiology of Vision,"* by Professor Hamilton Hartridge, F.R.S.

Wednesday

CAMBRIDGE UNIVERSITY.—In Department of Pathology Lecture Theatre, May 3, 5 p.m., *"The Genetic Approach to Virus Problems,"* by Professor F. M. Burnet, F.R.S. (University of Melbourne).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—May 3, 5 p.m., *"Experience with the Use of Refrigerated Bone in Surgical Procedure,"* Robert Jones Lecture by Professor P. D. Wilson.

ROYAL EYE HOSPITAL (KING'S COLLEGE HOSPITAL GROUP), St. George's Circus, London, S.E.—May 3, 5.30 p.m., *"Ophthalmic Neurology,"* by Mr. L. H. Savin.

Thursday

INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—May 4, 5 p.m., *"Physio- and Electro-therapy,"* by Dr. R. T. Brain.

DUBLIN UNIVERSITY.—At Trinity College (Dixon Hall), Dublin, May 4, 4.30 p.m., *"Synthetic Oestrogens in Treatment, with Special Reference to Malignant Disease,"* John Mallet Purser Lecture by Professor E. C. Dodds, F.R.S.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—May 4, 5 p.m., *"The Evolution and Treatment of Pharyngeal Diverticula,"* Otolaryngology Lecture by Mr. V. E. Negus.

ROYAL EYE HOSPITAL (KING'S COLLEGE HOSPITAL GROUP), St. George's Circus, London, S.E.—May 4, (1) 4.15 p.m., *"Visual Fields: Normal and Pathological,"* by Mr. C. Taylor; (2) 5.30 p.m., *"Operative Surgery,"* by Miss J. M. Dollar.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—May 4, 4.30 p.m., *"Psychiatry,"* lecture-demonstration by Sir Paul Mallinson.

Friday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, University New Buildings, Edinburgh, May 5, 5 p.m., *"The Development of Physical Medicine and Rehabilitation in America,"* by Dr. F. H. Krusen (Mayo Clinic).

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL, Maida Vale, London, W.—May 5, 5 p.m., clinical neurological demonstration, by Dr. Russell Brain.

ROYAL EYE HOSPITAL (KING'S COLLEGE HOSPITAL GROUP), St. George's Circus, London, S.E.—May 5, 4.15 p.m., *"Pathology,"* by Miss M. Savory.

Saturday

CAMBRIDGE UNIVERSITY.—At Anatomy School, May 6, 5 p.m., *"Humanism, History, and Natural Science in Medicine,"* Linacre Lecture by Dr. F. M. R. Walshe.

APPOINTMENTS

Alderman Dr. D. H. Pennant has been appointed High Sheriff of Pembrokeshire. He is chairman of the management committee of the West Wales Mental Hospitals and also vice-chairman of the county council.

COGGIN BROWN, P., M.R.C.S., L.R.C.P., D.P.H., Medical Officer of Health, Borough of Bury St. Edmunds, and Assistant County Medical Officer of Health, West Suffolk.

CROYDON GROUP HOSPITAL MANAGEMENT COMMITTEE.—*Consulting Surgeon at Purley and District War Memorial Hospital*, Victor H. Riddell, M.D., F.R.C.S. *Assistant Principal Surgical Officer at Croydon General Hospital*, S. P. Boffa, M.D. *Resident Medical Officer at Purley Hospital*, Gertrude Klatzkin, M.B., B.S.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

McDougle.—On April 21, 1950, at Norwich, to the wife of Dr. A. H. McDougle, a son.

O'Malley.—On April 11, 1950, at Walton Hospital, to Iola (née Trevor Jones, M.R.C.O.G.), wife of Austin O'Malley, M.Ch.Orth., F.R.C.S.Ed., a daughter.

Roddie.—On April 13, 1950, at the Royal Maternity Hospital, Belfast, to Ann P. M. Roddie, M.B., B.S. (née Hurst), wife of T. Wilson Roddie, M.B., B.Ch., M.R.C.O.G., a daughter.

Whitney.—On April 18, 1950, at the Lady Forester Cottage Hospital, Broseley, Shropshire, to Freda B. Whitney (née Bannister), M.D., D.A., and Rupert U. Whitney, M.B., B.Chir, D.A., a second son.

Willson.—On March 31, 1950, at Batu Pahat, Johore, to Dr. Marie Bernard (née Norton), wife of Dr. Leslie Willson, *M.C.*, Malayan Medical Service, a daughter.

MARRIAGES

Borrie—Merrifield.—On March 4, 1950, at St. Michael's, Chester Square, London, S.W., John Borrie, M.B.E., F.R.C.S., Dunedin, New Zealand, to Helen Merrifield, Johannesburg, South Africa.

Perrott—Hodgson.—On March 30, 1950, at St. Cuthbert's Parish Church, Darlington, John William Perrott, M.R.C.S., of King's College, Newcastle-upon-Tyne, to Nancy Hodgson, S.R.N., S.C.M., of Western General Hospital, Edinburgh.

Tyrrell Wylie.—On April 15, 1950, at Woodlands, Doncaster, David A. J. Tyrrell, M.B., Ch.B., M.R.C.P., to Betty Moyra Wylie, M.B., Ch.B.

DEATHS

Green.—On April 10, 1950, at Guildford, Surrey, Charles Robert Mortimer Green, M.D., F.R.C.S., D.P.H., Colonel, I.M.S., retired, aged 86.

Greig.—On April 13, 1950, at 38, Coates Gardens, Edinburgh, Edward David Wilson Greig, C.I.E., M.D., F.R.C.P.Ed., Lieutenant-Colonel, I.M.S., retired.

Jennings.—On April 3, 1950, at Bath, Arthur Richard Jennings, M.B., B.Ch., D.T.M., of 13 Catherine Place, Bath.

McGregor.—On April 13, 1950, at St. David's Hospital, Cardiff, John McGregor, M.B., Ch.B. of Ardchuille, Llandaff, Cardiff.

McKenzie.—On April 12, 1950, John Chancellor McKenzie, O.B.E., M.B., Ch.B., of 1, Doune Terrace, Edinburgh, recently of West Colinton House, Colinton.

Murray.—On April 9, 1950, Kenneth Arly Porterfield Rynd Murray, M.C., L.R.C.P.&S.I.

Norrington.—On April 14, 1950, Henry Lawrence Weekes Norrington, D.S.O., M.R.C.S., L.R.C.P., Colonel, R.A.M.C., retired.

Palmer.—On April 6, 1950, at 11, Wentworth Avenue, West Southbourne, Bournemouth, Francis James Palmer, Lieutenant-Colonel, R.A.M.C., retired.

Sherlock.—On April 14, 1950, Edward Birchall Sherlock, M.D., D.P.H., of Windleshaw Lower Street, Pulborough, Sussex, aged 81.

Starling.—On April 10, 1950, at Norwich, Hubert John Starling, M.D., D.P.H., of 45, All Saints' Green, Norwich, aged 76.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Treatment of Bronchiectasis

Q.—*What is the treatment of left basal bronchiectasis with some involvement of the right base? Surgical treatment does not seem to me advisable in view of the involvement of right base. What is the latest medical treatment, and would any form of penicillin be helpful? Radiologically there appears to be an infection of the left maxillary sinus, which is being treated.*

A.—In assessing the advisability of surgical treatment of a patient with bronchiectasis, much more complete information is required than is given in this question. First, from the history and physical examination an assessment must be made of the extent to which the bronchial dilatation is responsible for the symptoms. Especially when, as in this case, bronchial dilatation is present in more than one lobe, it may be found that the patient suffers from a generalized bronchitis, often with involvement of the mucosa of the nose and sinuses, and in fact that his condition is essentially due to a generally inferior respiratory mucosa. If the symptoms are those of recurrent bronchitis with mucoid or mucopurulent, rather than purulent, sputum and a tendency to wheezy dyspnoea, and if on repeated examinations there are rhonchi scattered all over the chest, it is highly improbable that benefit commensurate with the operative risk will be derived from surgery. A history of cough and purulent sputum, usually worse after intercurrent respiratory infections, possibly with attacks of haemoptysis, or with occasional acute pneumonic episodes, the patient not being wheezy or dyspnoeic between the attacks, would be in favour of the symptoms being principally or entirely due to the bronchial dilatation and therefore an indication for surgery. Secondly, complete bronchograms must be carried out to ascertain the segmental distribution of the bronchial dilatation. If this is confined to parts of the lung which it would be feasible to remove surgically in two operations—for example, the left lower lobe and the right middle lobe (a fairly common combination)—surgery might well be feasible in a case with bilateral disease. It will be clear from these general remarks that the suitability of a patient for surgical treatment is a matter for very careful assessment in the light of information from all available sources.

Medical treatment consists in postural drainage, breathing exercises, and the use of antibiotics, together with attention to factors outside the bronchopulmonary tree, such as nasal sinusitis. Postural drainage must be designed individually for the drainage of the affected areas. If the areas principally affected are indeed in basal segments of both lungs, the prone posture across a double inclined plane, as in a Nelson bed, is effective for drainage. If, however, the bronchial dilatation at the "right base" is in the right middle lobe this position will be ineffective for the right-sided disease. Assuming that it is the basal segments of both lungs which are involved, a wooden frame can be made in the shape of a double inclined plane to fit on any bed, the apex being in the middle and raised about 15 inches. The mattress can be put over this, and the patient can lie prone with his head down one slope and his legs down the other. The longer this position can be maintained the better, and it is usual to increase gradually the duration of postural drainage. Some patients with bilateral basal bronchiectasis are able to sleep in this position, and thus secure continuous postural drainage during the night, carrying on a normal life by day. If such elaborate methods are not possible, simple tipping over the side of the bed with the head on the floor for 10 or 15 minutes night and morning is helpful, but is much less efficient. In addition to postural drainage, physiotherapy, in the form of breathing exercises to mobilize the chest, helps the evacuation of secretions and assists in securing expansion of any atelectatic lobules or segments that may be present. When the history indicates that the bronchiectasis is of recent origin, it may be found that re-expansion of such atelectatic areas is followed by diminution in the degree of bronchial dilatation.

Penicillin is useful, since the more important bacteria infecting the dilated bronchi are usually penicillin-sensitive. Long-continued treatment is usually ineffective, since the penicillin-sensitive flora give place to a penicillin-insensitive flora, generally consisting of such organisms as *Haemophilus influenzae* and bacilli of the Friedländer group. Hence penicillin should be used in short courses and intensively. It is probably best to give it for a period of ten days by a combination of intramuscular injections of 300,000 units of procaine penicillin twice daily together with inhalation of a nebulized solution containing 50,000 units in 1 ml. or 2 ml. four-hourly. Any improvement that is likely to occur will be observed by the end of this time, and the bacterial flora will probably have become penicillin-insensitive. The improvement produced by such measures is likely to be temporary; sooner or later, often after an acute respiratory infection, the symptoms return. Bacteria of penicillin-sensitive types are then likely to be present once again, and the treatment can therefore be repeated with a reasonable prospect of a repetition of the favourable effect. With regard to the nasal sinuses, the benefit to be expected from treatment of these is a question which can be decided only by consideration of all aspects of the individual case. The relation between infected bronchiectasis and infected nasal sinuses is a reciprocal one; a persistently infected bronchiectasis can maintain infection in a maxillary antrum, just as an infected antrum can reinfect dilated bronchi. It is therefore reasonable to arrange treatment for any infection which is proved to be present in the nasal sinuses at about the same time as either medical or surgical treatment of the bronchiectasis.

Artificial Ear Drum

Q.—*Is any work being done in this country on what seems to be an artificial ear drum made from soft plastic material and used in America for patients whose ear drums have been destroyed by accident or by infection?*

A.—There does not appear to be any work of this kind published in this country. The artificial drum usually employed is a small pledget of cotton-wool moistened with liquid paraffin, placed in gentle contact with the round or oval window. Not every patient can tolerate this, and in some cases recurrence of otorrhoea is induced, while in others no improvement in hearing results. In the *Annals of Otology* for September, 1947, a rather more elaborate device was described by M. E. Pohlman in an article entitled "The Artificial Middle Ear."

Recurrent Dislocations of the Lower Ribs

Q.—*Is it possible for a temporary dislocation of the free end of the tenth rib to recur frequently and cause severe pain? Since I have passed my eightieth year I have often experienced sudden and severe pain just below the lower part of either the left or the right hypochondriac region. This pain occurs only when the trunk is strongly flexed, and usually when, with one foot on a chair, I am lacing my shoes. On standing upright the pain begins to subside, and in two or three minutes has become a dull ache. At its height the pain is acute and is centred over the interspace between the ninth and tenth ribs at about their costochondral junctions. From repeated observation I have no doubt that the pain is produced by a temporary dislocation forward and upward of the free end of the tenth rib, the cartilage of which is usually calcified in old age; this causes the intercostal tissues, including the nerve, to be nipped between the tenth and ninth ribs. Has such a recurring derangement been recognized and described previously? Is any treatment possible?*

A.—A condition such as that described in the question is recognized by orthopaedic surgeons. Symptoms of a similar nature may arise in younger patients with severe kyphotic or scoliotic deformities. The only measures likely to afford satisfactory relief are (1) to limit the range of flexion of the spine

by a well-fitting spinal support, or (2) to excise appropriate segments of the affected ribs. The benefit to be expected from these measures has to be balanced against the discomfort of wearing a rigid corset or the inconvenience of operation. Treatment should be advised only when the condition is the cause of quite significant disability. In the particular case mentioned it seems probable that the wisest course would be to accept the disability. Further information and reports of cases may be found in the following papers: Holmes, J. F., *Amer. J. Surg.*, 1941, **54**, 326; Ballon, H. C., and Spector, L., *Canad. med. Ass. J.*, 1938, **39**, 355; Davis-Colley, R., *British Medical Journal*, 1922, **1**, 432; Cyriax, E. F., *Practitioner*, 1919, **102**, 314.

Loss of Libido after Oophorectomy

Q.—*A married woman, aged 45, the mother of three children, has complete loss of libido and orgasm since total hysterectomy with bilateral oophorectomy for fibroids and cystic ovaries four months ago. Can any treatment be suggested?*

A.—Loss of sexual feelings does sometimes follow oophorectomy, but not inevitably. Before concluding that it is due to hypo-oestrinism in this case it will be necessary to wait longer. The woman will not have completely regained her physical and mental vigour so soon after the operation, and this alone may account for the symptoms. There may be some inhibitory factor, such as fear of disturbing the site of operation, or the patient may have been led to believe that frigidity is to be expected after such treatment. General measures, including adequate rest and patience, should be tried first, but if these fail, and provided the reason for the operation does not contraindicate it, small-dose oestrogen therapy may be tried cautiously. If it is successful the dose should be gradually reduced over the course of a few months rather than discontinued suddenly or continued indefinitely.

Local Effects of Potassium Cyanide

Q.—*Is there any method of prevention, any antidote, or any recognized treatment for the type of necrosis caused by potassium cyanide getting into cuts and abrasions on the hands? This type of lesion is seen in men at a silver-plating factory where they dip the articles to be plated in various strengths of potassium cyanide.*

A.—Potassium cyanide is the salt of a strong base, caustic potash, and a weak acid, hydrogen cyanide, hence it has a strongly alkaline reaction in aqueous solution. In the plating shop where potassium cyanide is used there is likely to be contact with other alkaline solutions, and with solutions of nickel salts which may be responsible for skin irritation. Prosser White quotes Whitfield in stating that potassium cyanide produces a very obstinate ulceration if it comes in contact with the slightest abrasion of the epidermis. Cyanide solutions, especially if alkaline, are absorbed through the skin, and the risk of poisoning should always be appreciated. The antidote is: (*a*) 158 g. of ferrous sulphate crystals; (*b*) 60 g. anhydrous sodium carbonate. Each is dissolved in one litre of water and kept ready for immediate use. The dose is equal volumes (50 ml.) of (*a*) and (*b*) taken in half a tumbler of water. This same antidote is useful, too, in washing skin contaminated with cyanide solutions.

The prevention of skin irritation from cyanide lies in the avoidance of contact by wearing rubber gloves. The treatment of cyanide dermatitis by the use of boric acid ointment or wet boric acid dressings is discussed in the *Journal of the American Medical Association* ("Queries," 1942, **118**, 935). When cyanides are present on skin surfaces the cyanide is transformed promptly to the carbonate, so that the lesion produced is an alkali burn, and there is every reason for the prompt removal of any such solution in order to avoid the action of the alkali. Boric acid serves admirably as a buffering agent, and if persistently used will maintain a *p*H ranging from 0.6 to 0.8. When deep ulcerations are produced by cyanide or, more likely, by the carbonate, with ensuing eschars, superficial débridement may be necessary. It is, of course, an important point of any treatment to avoid further contact until healing is complete.

D.O.C.A. and Ascorbic Acid in Rheumatoid Arthritis

Q.—*Suprarenal cortical hormone and ascorbic acid have been used in treating rheumatoid arthritis. What is the dosage and the technique of administration? What reactions are likely? Is it safe for an ordinary general practitioner to use in the patient's home? Which preparation is best, and how long must treatment be continued?*

A.—The suprarenal cortical hormone referred to is desoxycorticosterone acetate (D.O.C.A.), which in conjunction with ascorbic acid has been advocated recently as an ameliorative method of treatment in cases of rheumatoid arthritis. The dosage recommended is 5 mg. of D.O.C.A. and 1 g. of ascorbic acid. The former is injected subcutaneously, while the latter must be given intravenously. Although ascorbic acid can be given intramuscularly, it is extremely painful and patients generally object on this account; it is also doubtful whether it really is so effective by this route. The number of injections necessary is dictated by clinical response, in view of the fact that the effect—if any—is transient; the maximum benefit is seen generally about 30 minutes after injection. No dangerous reactions are likely as the result of one or two injections in this dosage, although it must be remembered that D.O.C.A. is a dangerous drug. From the practical point of view it is not generally expedient to give injections more often than once or twice a week. The treatment could be given by a general practitioner, as the technique is simple. Any elevation of the blood pressure, myocarditis, or nephritis are contraindications to the use of D.O.C.A. It is probable, however, that the reports on this method up to date have sounded rather too optimistic a note. A letter on the subject appears on p. 1006 in this issue of the *Journal*.

NOTES AND COMMENTS

Promoting Lactation.—Professor R. S. ILLINGWORTH writes from the Children's Hospital, Sheffield: I thought that the reply under this heading in "Any Questions?" (April 8, p. 858) was singularly unhelpful. It omits all mention of the important causes of the failure of lactation, in particular too early and unnecessary complementary feeding, failure to empty the breast after each feed when there is some deficiency of milk, and failure to treat overdistension of the breast by frequent suckling (provided the baby can get the milk), manual expression, and in severe cases stilboestrol. Such a statement as "attention to the details of technique in suckling is important" is just meaningless verbiage unless amplified and explained. There is no evidence that failure of lactation is due to an inadequate blood supply, and therefore the measures advised to promote a good supply are pointless. Furthermore, a woman with painful distended breasts two or three days after the birth of her baby would not relish "arm exercises." The evidence that thyroid extract and iodine are of value in promoting lactation is to say the least of it extremely slender. I should advise your questioner to read Dr. Charlotte Naish's book *Breast Feeding*, 1948, London, and Dr. Harold Waller's papers (*Arch. Dis. Childh.*, 1946, **21**, 1; *Lancet*, 1950, **1**, 53; *Mon. Bull. Min. Hlth.* 1947, **6**, 73).

Anal Fissure.—Dr. W. M. PENNY (Beckenham, Kent) writes: In the treatment of anal fissure described in "Any Questions?" (April 15, p. 918) I was surprised that there was no mention of stretching the anus under nitrous-oxide anaesthesia. This gives immediate relief, apart from a little local soreness, and healing of the ulcer can be expected with great confidence. That, at least, is my experience in many years of general practice.

Correction.—In our report of the inaugural meeting of the Renal Association (April 22, p. 953) we omitted to say that Dr. A. A. Osman was elected president of the association.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs.
ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads, Westcent, London*.
MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra, Westcent, London*.
B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.